SEG

Service Manual

DVD Player

DVD 2000
DVD 2001

RDP-713 Series

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This specification describes a full-function high performance DVD Player that supports full DVD/VCD/CD-DA function navigation with full function remote controller.
This intelligent DVD Player is microprocessor controlled and also allows users to place their own settings into memory via external setting. It's settings status is indicated on screen.

It has the following main features:

- DVD Navigation 1.0
- Built-in Content Scrambling System (CSS)
- Multi-tap filters provide arbitrary scaling with state of the art SmartScale technology useful for video standards conversion.(NTSC ←→ PAL conversion)
- SmartStream technology provides video error concealment and video post-processing.
- Supports MPEG-1 system and MPEG-2 program streams
- Compatible with audio CD, Video CD 1.1, 2.0, interactive VCD 3.0, and Super Video (SVCD)
- 10 bit, 27 MHz D/A converter
- 24 bit, 96kHz D/A converter
- Ergonomic remote control
- Trick modes include Slow, Fast Forward, Fast Reverse, Search
- Pan & Scan and Letter-Box conversions
- Motion Zoom & Pan with SmartZoom
- NTSC to PAL Conversion and vice versa with SmartScale
- Video error Concealment with SmartStream
- Sub-Picture Decoder
- 4-bit On-Screen Display (OSD) with 4-bit blending
- 8-bit YUV output
- S-terminal Video Output
- YPbPr component analog video signal output (Option)
- Bidirectional I2S audio interface.
- Fully Karaoke function
- High Quality Video Performance
- Dolby Digital (AC-3) 5.1 channel or 2-channel downmix audio output for Dolby Pro logic
- Linear PCM Streams for 48kHz and up to 96KHz
- S/PDIF audio output for Toslink & RCA connector.
- Supports 256/384/512 FS audio System clock
- High Quality Audio Performance
- Built-in MP3 decoder. (Option)
- dts digital output

2. OPERATION SPECIFICATIONS

2.1 Environment

2.1.1 Temperature

Operating	10° C to 40° C
Non-operating	-30° C to 60° C

2.1.2 Humidity

Operating	20% to 80% RH (non-condensing)
Non-operating	5% to 90% RH (non-condensing)

2.1.3 Altitude

Operating	0 to 3,048m (10,000ft)
Non-operating	0 to 12,192m (40,000ft)

2.2 Vibration

Operating of data read	0.5G, at 10 to 500Hz sweep, sine wave, 1/4 Octave/min (excepting resonance point)
Operating of Audio play	0.15G, at 10 to 500Hz, random (15min/Axis for X,Y,Z)
Non-operating	2.0G Rms, at 10 to 500Hz random (30min/Axis for X,Y,Z)

After test, there are no hard errors permitted.

2.3 Shock

Operating of

Data read	5G, 11msec half sine wave
Audio play	1G,11msec half sine wave

(20 shocks for X,Y, Z with 3 seconds between shocks)

Non-operating 140G, 2msec half sine wave

After test, there are no hard errors permitted.

2.4 Drop Test

The drive will be packed in shipping carton box that protects against shock and vibration during transportation. The shipping carton box will support 1 unit in a single package for efficient handling and shall withstand a drop test as following:

PKG. Gross Wt	No. of Drops	Drop Height
6.5kg	10	30"(76cm)

The drops consist of six side surfaces, bonded corner and three edges extending from the bonded corner which is 10 drops totally.

The subject drive must withstand 8kv test voltage of Electrostatic Discharge and meet the acceptance criteria as specified in IEC 801-2

2.6 Safety Requirements

This drive unit shall comply with the following safety standards and specifications.

- CSA Compliance..... CSA C22.2 No.1
- DHHS/FDA..... Regulation 21,CFR subchapter J class 1 laser products
- TUV Compliance..... EN60065 + EN60825

2.7 EMC Requirements

This Drive Unit Shall comply with the following EMC rules and regulations.

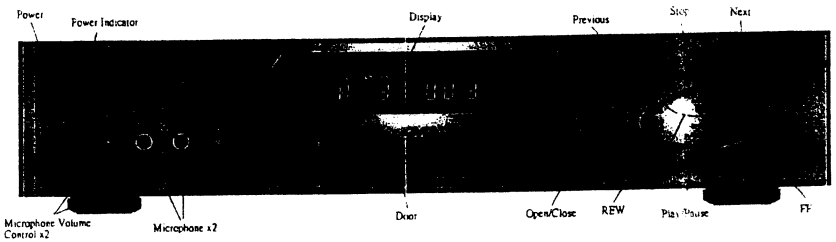
- FCC Compliance.....
- CE Compliance..... EN60065 + EN55013 + EN50022 CLASS B

2.8 Reliability

MTBF	60,000 POH at 10% duty cycle in room temp.
MTTR	30 min max.
Noise	40 dB max. (at 1 m)

3. INPUT/OUTPUT SPECIFICATIONS

3.1 Front Panel



The front panel as above drawing is including the following parts/functions:

3.1.1 Power

Push this button for power on/off

3.1.2 Power Indicator

When the DVD-Player power on, this indicator will turn off. When the DVD-Player is power off, the indicator will be light on.

3.1.3 Door

Door of the tray to hold the disk

3.1.4 Display

To indicate the operation status of player

3.1.5 Open/Close Control

Push button of function Open/Close

3.1.6 Control keypad

- Play/Pause key
- Stop key
- Previous chapter key
- Next chapter key
- Fast Forward
- Fast Reverse

3.1.7 Microphone

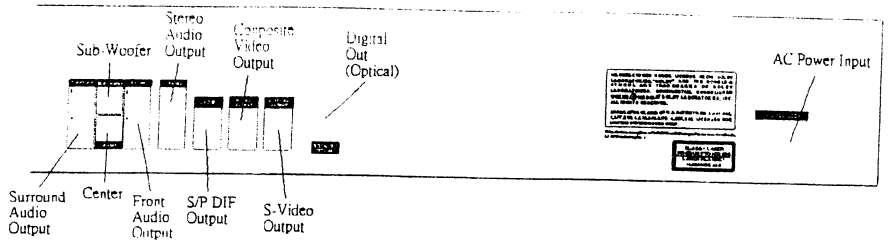
Phone jack, M6 type industrial standard.

- Input connection 2sets
- Input Voltage -70dB

3.1.8 Microphone Volume Control

Rotary volume control

3.2 Rear Panel



The rear panel as above drawing is connectors, which consist of AC power input.S-Video output, Video (RCA™ type) output, Audio Stereo output , Dolby™ Digital AC-3 5.1 channel output, Optical and Coaxial digital output .

3.2.1 AC Power Input Requirements

1) Connector
The AC power line connection shall be accessible at the rear of the unit.

2) Power Requirement
- Input Voltage : 100~230 Vac
- Input Current : 0.4Arms
- Frequency Range : 47~63 Hz
- Max Power consumption : 35 Watts

3.2.2 Output Power Requirements

The power CKT can provide DC power outputs as followings:

- Output1 : +5V (+-5%) 2.5A
- Output2 : +12V (+-5%) 1.2A
- Output3 : -12V (+-5%) 0.3A
- Output4 : -27V (+-10%) 0.005A
- Output5 : 3.5Vac (+-3%) 0.15A

3.2.3 Video Output Requirements

1) General Specifications
- Output impedance : 75 Ohm +- 10%
- SN ratio : > 55 dB

2) S-Video connector : 1 set
- Output Level (Y) : 1.0 +- 0.2 Vp-p(75 Ohm)
- Output Level (C) : (NTSC) 0.286 +- 0.05 Vp-p(75 Ohm)

- Output Level (C) : (PAL) 0.300 +- 0.05 Vp-p(75 Ohm)

3) Video connector : 1 set
- Output Level : 1.0 +- 0.2 Vp-p(75 Ohm)

4) YPrPb component analog video : 1 set (Option)
- Output Level (Y) : 1.0 +- 0.2 Vp-p(75 Ohm) (Green)
- Output Level (Pb) : 0.7 +- 0.1 Vp-p(75 Ohm) (Blue)
- Output Level (Pr) : 0.7 +- 0.1 Vp-p(75 Ohm) (Red)

3.2.4 Audio Output Requirements

1) General specifications
- Output level : 2.0 +- 0.2Vrms
- Frequency response : (LFE) 20 ~ 200 Hz +- 1dB
  (Others) 20Hz~20kHz +- 1dB
- THD : < = 0.1dB
- Channel separation : > = 85dB at 1kHz
- L/R balance : < = 1dB
- Dynamic range : > = 85dB at 20Hz ~ 20kHz
- Noise modulation : < = 3dB

2) Stereo Audio connector : 1 set
3) S/P DIF connector (RCA) : 1 set
4) S/P DIF connector (Optical) : 1 set

4. FUNCTION SPECIFICATIONS

4.1 Input Disc Specification

4.1.1 DVD Disc

DVD disc format is meet the DVD Specifications for Read-Only Disc. (Version 1.0)

- Part 1 : Physical Specifications
- Part 2 : File System Specifications
- Part 3 : Video Specifications

The audio format is meet the following standards.

- Dolby Digital (AC-3) format
- PCM format

The Video Format is meet the ISO-13818 (MPEG II) format.

4.1.2 VCD Disc (White Book)

- Video CD 1.1, 2.0 ,3.0

4.1.3 CD-DA Disc

4.1.4 Super VCD Disc

4.1.5 MPEG-1 layer 3 audio

4.1.6 Disc Protection Specification

- Content Scrambling System (CSS)
- Macrovision – Specifications of the Macrovision Anti-taping Process for Digital Platforms Rev 7.01

5. PHYSICAL SPECIFICATIONS

5.1 Physical Dimension & Appearance

Dimension : 434(W)x 285(D)x 95(H)mm

Weight (kg) : 4.4 kg

Package weight (kg) : 6.5kg

Color of player : Gold (according to Raite's Color chip)

5.2 Construction and Materials

- Front bezel/button/Door Material ABS plastics, flame retarded

- Chassis: SECC sheet metal, thickness 0.8mm

5.3 Marking & Labels

5.3.1 Reference Labels

1) Product label

This label includes MFG date, origin, serial number, power rating, model number, and Safety/EMC agency approval marks, Laser warning label, user caution label

5.3.2 Marking

1) Connectors: printing
2) User's controls: plastic molding or printing

5.4 Packaging

5.4.1 Shipping Package

The Player is packed in shipping carton box with EPS to protect against shock and vibration during transportation.

6.1 General Requirements

6.1.1 Installation

From outside of unit with standard tools and user manual provided to user.

6.1.2 Periodic Maintenance

No periodic maintenance is required.

6.2 Mean Time To Repair (MTTR)

Less than 30 minutes by adequately trained technician.

6.3 Accessibility

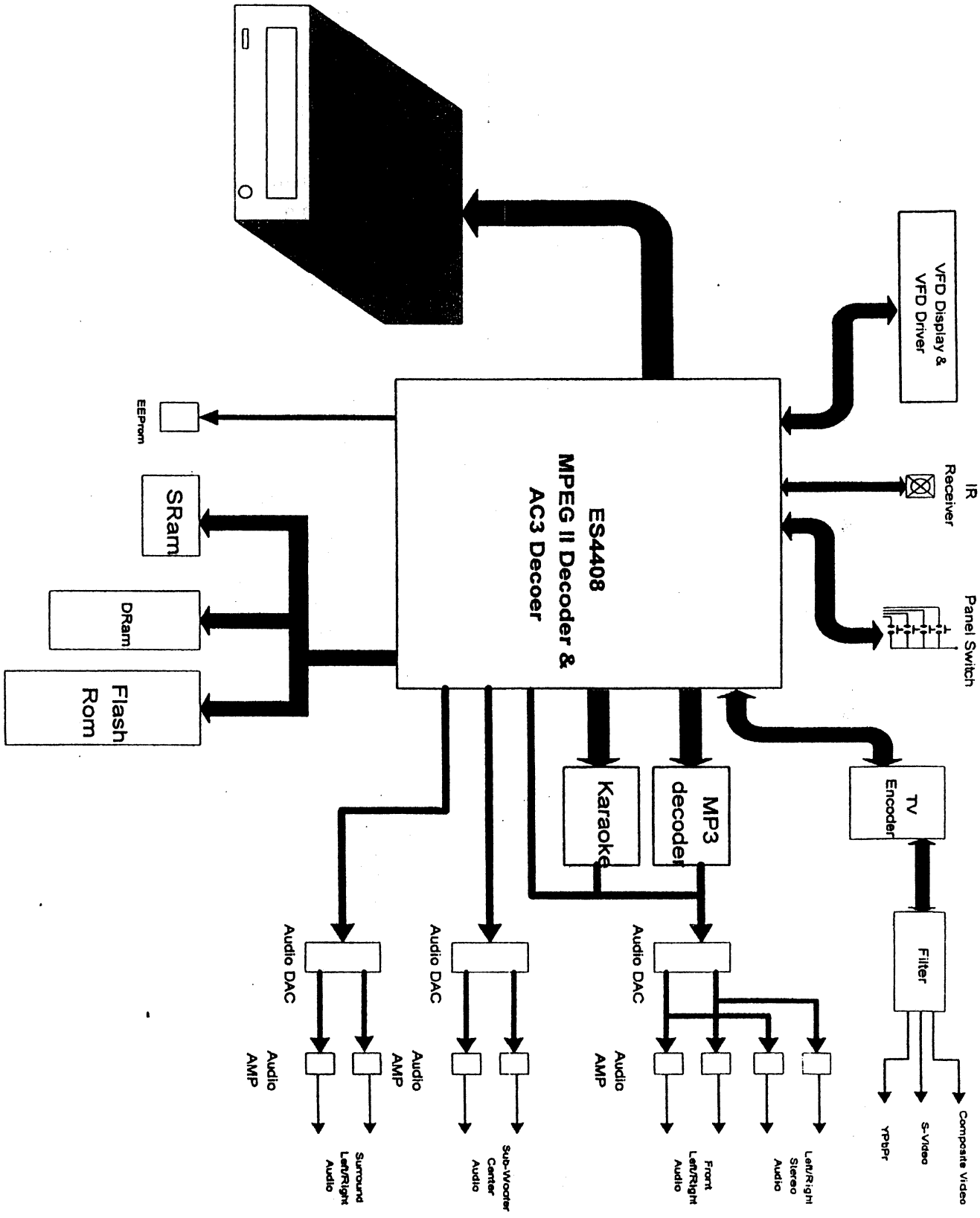
Only trained technicians are permitted to disassemble the device.

6.4 Documents

A Service manual will be available which covers all service requirements.

7. OPERATING THEORY

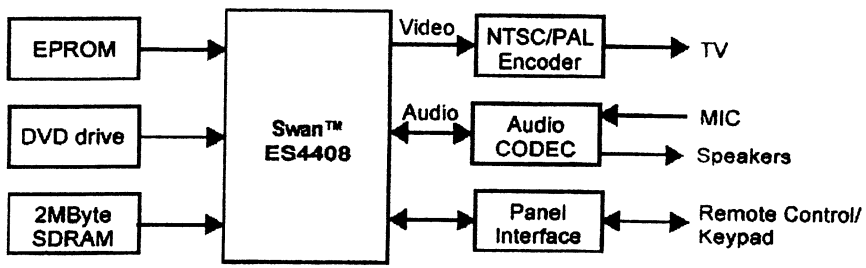
7.1 Block Diagram



Crystal 27MHz ---------- MPEG II system,

7.3 MPEG II Decoder & Memory

The ES4408 provides a glueless 8/16-bit parallel interface to many DVD servo/loaders. It connects directly with 8/16-bit ROM and 16-bit SDRAM/EDO. An 8-bit YUV video interface supports many TV encoders. General purpose auxiliary pins are provided to control various peripheral devices. A standard I 2 S interface supports popular audio DACs and ADCs. The ES4408 also features a direct S/PDIF output.The DVD system stream from a DVD disc is passed to the Swan ES4408 through the 8-bit/16-bit parallel host interface.The Swan ES4408 parses the system layer and demultiplexes the audio and video streams. Audio is decoded and passed through the I 2 S audio serial bus to an external audio DAC and then to the speakers. Video is decoded and output as YUV pixelsn to an NTSC or PAL video encoder. System control and housekeeping functions (keypad and remote control) are also provided on-chip.



RISC Processor

Embedded in the Swan ES4408 is a 32-bit pipelined RISC processor, with 16 Kbytes of combined Instruction and data cache. Programming of the RISC processor is done mostly in C. For applications involving an external host processor the communication between a host processor and the ES4408 is handled by a host interface module as described below.

Video Processor

The video processor consists of a programmable SIMD engine and 2 Kbytes of internal cache memory. The video processor is controlled by 32-bit and 16-bit wide dual issue micro-instruc-tions.Commonly used
microcode subroutines are stored in 8 Kbytes of internal microcode ROM, while not so fre-quently used microcode segments can be down-loaded on demand to 2 Kbytes of internal microcode RAM.

Video Output

The video output section controls the transfer of video frames stored in the DRAM to an external TV encoder. It consists of a programmable CRT controller running in either master or slave mode. It features display FIFOs to buffer outgoing luminance and chrominance data and performs YUV420 to YUV422 conversion. Arbitrary horizontal decimation/interpolation is achieved by a polyphase filter. Together with program-mable line dropping/duplication circuitry and micro-code based post-processing running on the video processor, the Swan ES4408 is capable of arbitrating image con-version.Examples include SIF to CCIR601, Letter-box,NTSC to PAL, and PAL to NTSC conversions.

Transport

ES4408 incorporates a micro-programmable system demultiplexer capable of handling MPEG-1 system stream, MPEG-2 program stream, MPEG-2 transport stream, and other proprietary system multiplexes. It contains a 32-entry PID table and satisfies the transport requirements of the DVB standard.

Huffman Decoder

Thc Huffman decoder is a high-speed engine that decodes MPEG variable length codes (VLC), using built-in MPEG-1 and MPEG-2 VLC tables. A high-level Huff-man table, which controls the automatic switching from one VLC table to the next, is programmable. The input VLC data is transferred from DRAM to the Huffman decoder via a DMA channel. The resulting Zero-Run-Length- Amplitude (RLA) tokens are transferred on the DRAM bus to the video processor core.

Audio Interface

The audio interface is a bidirectional serial port that connects to an external audio ADC/DAC for the transfer of PCM (pulse coded modulation) audio data in I 2 S format. It supports 16-, 24-, and 32-bit audio frames. No external master clock is required.

DRAM Interface

The Swan ES4408 provides a glueless 16-bit interface to DRAM memory chips. The maximum amount of
memory supported is 8 MBytes. This DRAM interface is configurable in depth to support 16M-bit addressing, Extended Data Out (EDO) DRAM, and Synchronous DRAM (SDRAM). The configuration can be done in three ways:
EDO 256 K x 16-bit and 1 M x 16-bit
SDRAM 16 M-bit (512 K x 16-bit x 2 Bank), or
A combination of EDO and SDRAM

On-Screen Display (OSD)

The video output section includes dedicated OSD hardware. The OSD operates with 2 or 4 bits per pixel palettized colors with 16 levels of transparency. It can take up the full or a partial screen area. It is

bitmap is stored in the reference DRAM.

DRAM DMA Controller

The DRAM DMA controller controls multiple DMA channels for the transfer of 16-bit data between the DRAM and the video interface, the audio interface, the Huffman decoder, the transport, the RISC processor, and the video processor. There is a separate channel for DRAM refresh.To improve DRAM bandwidth utilization, internal gateway FIFOs are used extensively.

TDM Interface

The Time Division Multiplexed (TDM) interface implements a high speed bidirectional serial bus. It can implement a number of high-speed serial protocols. The TDM interface can also act as a general-purpose 16 Mbps serial link when not constrained by TDM protocols.

Host Interface

The host interface allows communication between the RISC and an external host. It contains three ports:
debug port (8-bit wide)
command port (8-bit widc)
DMA port (16-bit wide)
The host interface has two registers that control the operation of the flags and interrupts,R_HOSTRQSTAT
and R_HOSTMASK for the RISC side and H_HOSTRQSTAT and H_HOSTMASK for the HOST side. Flags are used to indicate ES4408's readiness to accept or supply data over the host interface DMA channel.Interrupts may be used for exception indication from RISC-to-host or from host-to-RISC. The interrupts are maskable.

DCI Interface

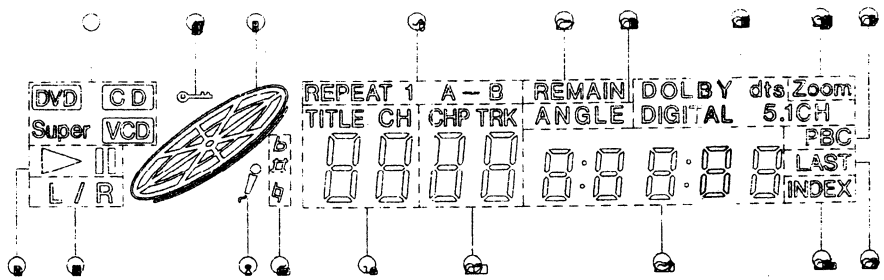
In addition to TDM (serial interface) and Host (parallel interface), the Swan ES4408 offers DCI, a direct interface to DVD loaders. This 8-bit parallel interface meets the specification of many DVD loader manufacturers.

DVD Descrambling

The Swan?ES4408 incorporates dedicated circuitry to perform DVD descrambling in accordance with the Content Scrambling System (CSS) specification.

7.4 User Interface

ES4408 supports housekeeping functions (keypad & remote control). We can modify the firmware to meet our requirement about the remote control & keypad on the front panel.
For the VFD Display, we can use the general I/O to send the control data to chip upd16311



Seg1	Seg4	Seg8	Seg12	Seg16	Seg20	
00 HL	00 HU	01 HL	01 HU	02 HL		DIG1
03 HL	03 HU	04 HL	04 HU	05 HL		DIG2
06 HL	06 HU	07 HL	07 HU	08 HL		DIG3
09 HL	09 HU	0 AHL	0 AHU	0 BHL		DIG4
0 CHL	0 CHU	0 DHL	0 DHU	0 EHL		DIG5
0 FHL	0 FHU	10 HL	10 HU	11 HL		DIG6
12 HL	12 HU	13 HL	13 HU	14 HL		DIG7
15 HL	15 HU	16 HL	16 HU	17 HL		DIG8
18 HL	18 HU	19 HL	19 HU	1 AHL		DIG9
1 BHL	1 BHU	1 CHL	1 CHU	1 DHL		DIG10
1 EHL	1 EHU	1 FHL	1 FHU	20 HL		DIG11
21 HL	21 HU	22 HL	22 HU	23 HL		DIG12
24 HL	24 HU	25 HL	25 HU	26 HL		DIG13
27 HL	27 HU	28 HL	28 HU	29 HL		DIG14
2 AHL	2 AHU	2 BHL	2 BHU	2 CHL		DIG15
2 DHL	2 DHU	2 EHL	2 EHU	2 FHL		DIG16

7.5 Video Output

Bt865 is specifically designed for video systems requiring the generation of composite, Y/C (S-video) or RGB (SCART) video signals from an 8- or 16-bit YcrCb digital video stream. Worldwide video standards are supported including NTSC-M, PAL-B, D, G, H, I, PAL-M, PAL-N and PAL-Nc. Analog luminance (Y) and chrominance (C) information is available on the Y and C outputs for interfacing to S-video equipment. The composite analog video signal is output simultaneously onto two outputs. This allows one output to provide baseband composite video while the other drivers a RF modulator. Analog RGB is also available to allow for support of the European SCART/PeriTV interface.

Bt865 also supports the following functions

-CIR 601
-10-bit DACs
-Master or Slave video timing
-Interlaced/non-interlaced operation
-Macrovision support
-Closed Caption encoding
-Teletext encoding
-I2C interface
-On-board voltage reference
-Power-down mode

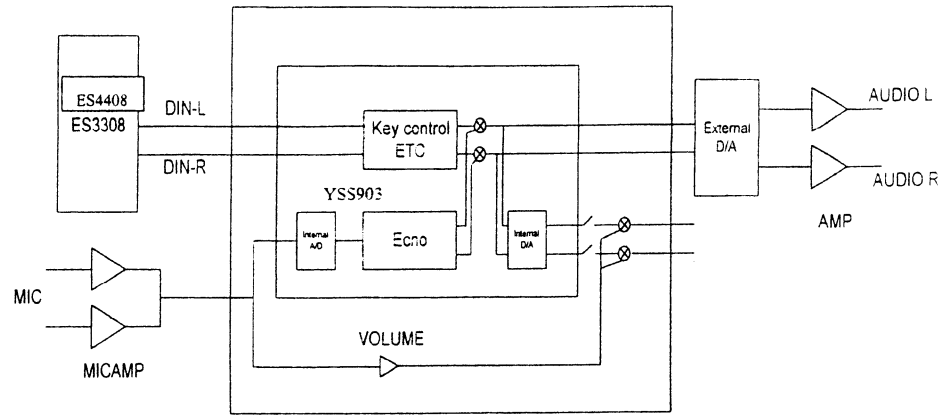
7.6 Audio Output

(A) Karaoke function → YSS903

YSS903 is a LSI for processing voice signals of Karaoke system. It incorporates an AD(1 channel) / DA(2 channel) and a memory for microphone echo and key control so that the essential functions needed for "Karaoke" such as Key Control, Voice Cancel, Microphone Echo, Tone Control and Surround can be obtained, without requiring other devices.

Since the microphone echo provides reverb-echo in addition to its original function, and the device has the key control function for microphone, it can provide various uses. In addition to these Karaoke programs, this LSI can provide the movie and music program. In this mode, the user is able to enjoy listening movie and music sources by adding surround effect.

This karaoke LSI chip supports digital by-pass function, the digital stereo audio can bypass through YSS903 to the audio DAC.



(B) Digital/analog converter → PCM1716

The PCM1716 is designed for Mid to High grade Digital Audio applications which achieve 96kHz sam-pling rates with 24-bit audio data.The internal digital filter operates at 8x over sampling at a 96kHz sampling rate, with two kinds of roll-off performances that can be selected: sharp roll-off, or slow roll-off, as required for specific applications.PCM1716 is suitable for Mid to High grade audio applications such as CD, DVD-Audio, and Music Instruments, since the device has superior audio dynamic performance, 24-bit resolution and 96kHz sampling.

SAMPLING RATE FREQUENCY (f_S) - LRCIN	SYSTEM CLOCK FREQUENCY - MHz			
	$256f_S$	$384f_S$	$512f_S$	$768f_S$
32kHz	8.1920	12.2880	16.3840	24.5760
44.1kHz	11.2896	16.9340	22.5792	33.8688[1]
48kHz	12.2880	18.4320	24.5760	36.8640[1]
96kHz	24.5760	36.8640[1]	49.1520[1]	–

MODE (pin 24) = H	Software Mode
MODE (pin 24) = L	Hardware Mode

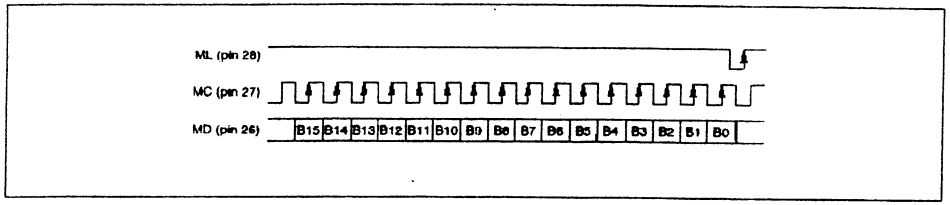
-SOFTWARE MODE (MODE = H)

PCM1716 special functions at software mode is shown in Table VI. These functions are controlled using a ML, MC,MD serial control signal.

-PROGRAM REGISTER BIT MAPPING

PCM1716 special functions are controlled using four pro-gram registers which are 16 bits

used to latch in the data to the appropriate register.



FUNCTION	DEFAULT MODE
Input Audio Data Format Selection Standard Format Left Justified I²S Format	Standard Format
Input Audio Data Bit Selection 16-Bit 20-Bit 24-Bit	16-Bit
Input LRCIN Polarity Selection Lch/Rch = High/Low Lch/Rch = Low/High	Lch/Rch = High/Low
De-emphasis Control	OFF
Soft Mute Control	OFF
Attenuation Control Lch, Rch Individually Lch, Rch Common	0dB, Individual
Infinite Zero Mute Control	Not Operated
DAC Operation Control	Operated
Sampling Rate Selection for De-emphasis Standard Frequency 44.1kHz 48kHz 32kHz	44.1kHz
Slow Roll-Off Selection	Not Selected (Sharp Roll-Off)
Output Phase Selection	Not Inverted
CLK0 Output Selection	Input Frequency

7.7 EEPROM

The following table list the EEPROM contents

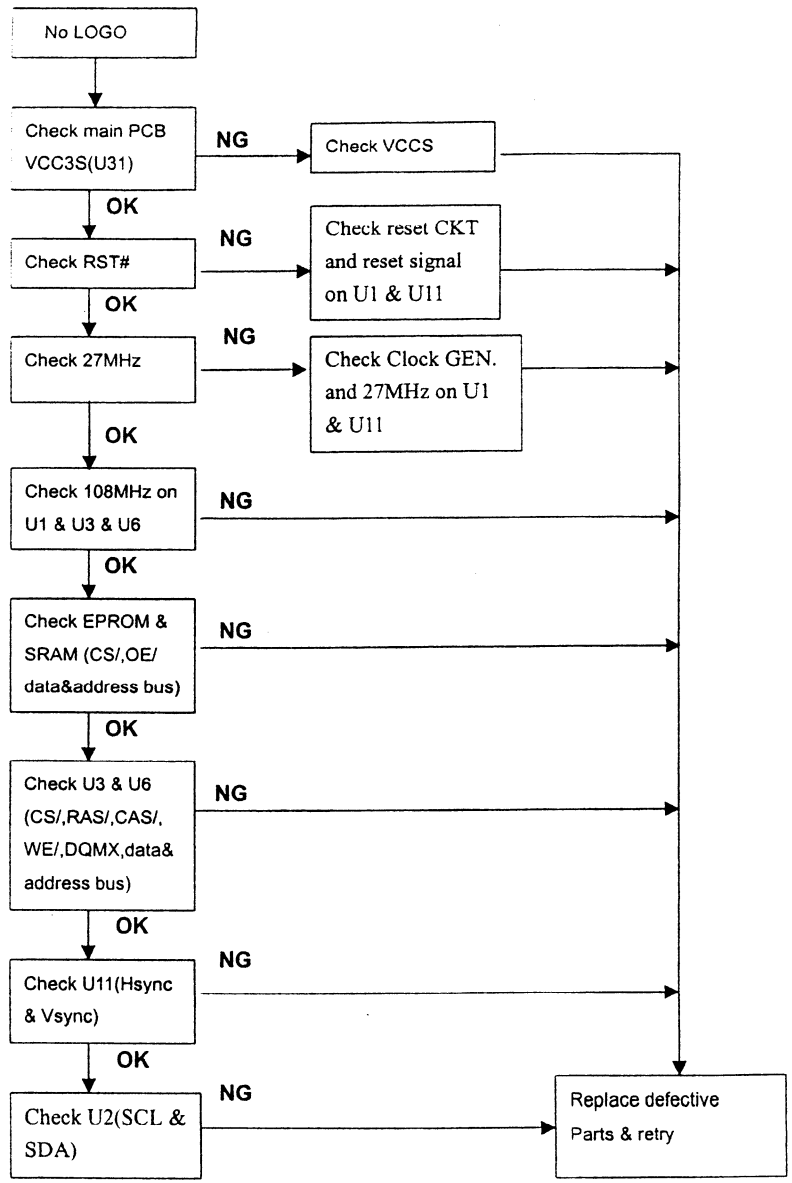
Location	Value	Content
00	45	ID (indicate ASCII Code Value :'E')
01	53	ID (indicate ASCII Code Value : 'S')
02	31	Password (Indicate ASCII Code Value: 3)
03	32	Password (Indicate ASCII Code Value: 3)
04	33	Password (Indicate ASCII Code Value: 0)
05	34	Password (Indicate ASCII Code Value: 8)
06	03	03: Wide (16:9) 02: Letter Box (4:3) 01: Pan-Scan (4:3)
07	02	01: Multi 02: NTSC 03: Pal
08	01	ANGLE MAKE 01:ON 02:OFF
09	02	01: OSD → English 02: OSD → Chinese
10	01	01: Audio → Dolby Digital 02: Audio → SPDIF/RAW 03: Audio → SPDIF/PCM
11	02	01: C. Caption → on 02: C. Caption → close
12	01	SCREEN SAVER 01:0N 02:OFF
13	FF	Reserved
14	02	Subtitle →01:English →02:Chinese →03:JAPANESE →04:FRANCH →05:SPANISH →06:OFF
15	02	Language →01:English →02:Chinese →03:JAPANESE →04:FRANCH →05:SPANISH
16	01	01: Kids 02: GENERAL 03: PG 04:PG-13 05: 06:PG-R 07:NC-17 08:ADULT
17	FF	Reserved
18	01	COMPRESS MODE 01:LINE OUT
19	01	AC-3 OUT_MODE:DUAL MONO:01:STEREO

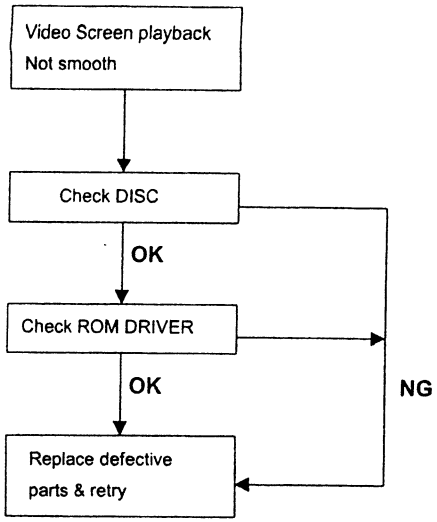
21	01	DYNAMIC RANGE SCALE 01-1
22	FF	Reserved
23	FF	Reserved
24	FF	Reserved
25	01	LEFT OUTPUT
26	01	RIGHT OUTPUT
27	01	TEST TONE
28	03	Region ID: 03
29	01	CSS : AUTO
30	FF	MarcoVision
31	FF	Reserved
32	FF	Reserved
33	01	FRONT SPEAKER
34	01	CENTER SPEAKER
35	01	REAL SPEAKER
36	FF	Reserved
37	01	CENTER DELAY
38	01	SURROUND DELAY
39	01	Base DIR
40	FF	Reserved
41	FF	Reserved
42~	Xx	Reserved
43	01	KARAOKE MODE OFF
44	01	KARAOKE ECHO:MONO
45	07	KARAOKE ECHO DELAY
46	01	KARAOKE MIC KEY
47	7F	KARAOKE MIC VOLUME
48	01	KARAOKE BASS KEY
49	01	KARAOKE MIDD KEY
50	01	KARAOKE TREB KEY
51	Xx	Reserved
52	14	E2 VOLUME POSITION
53	00	E2 VOLUME PROHIBIT

8. TROUBLE SHOOTING GUIDE

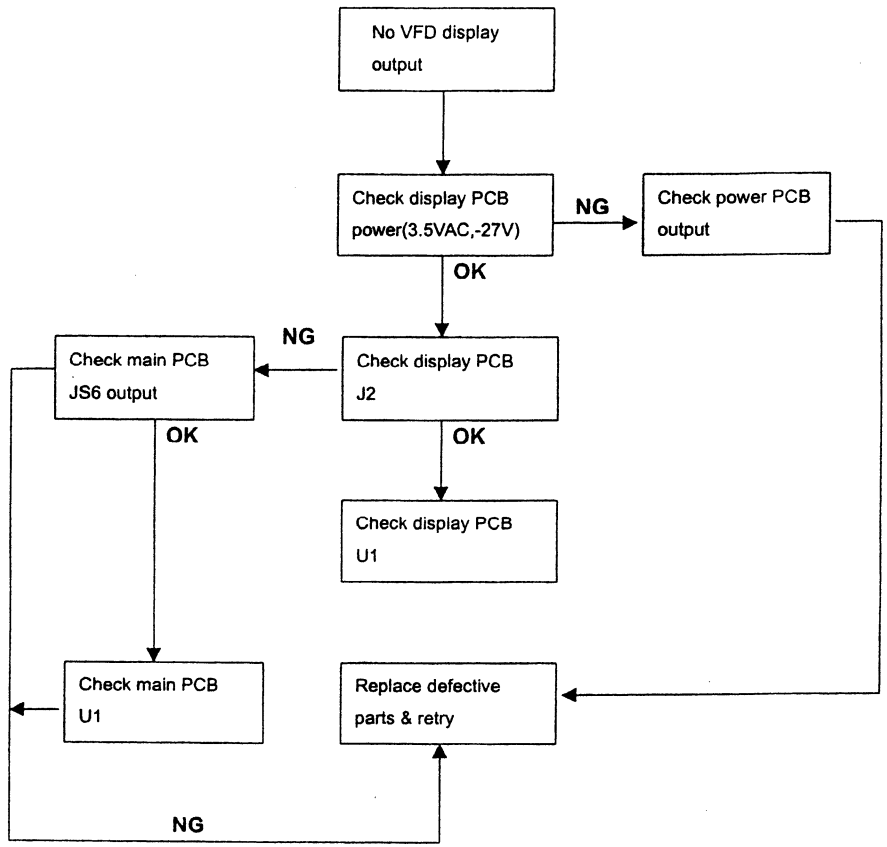
8.1 VIDEO PROBLEM

No LOGO



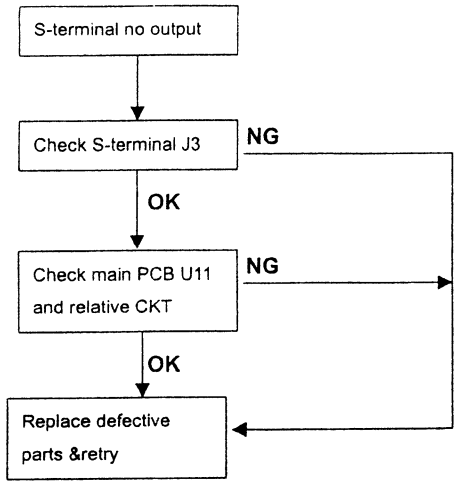


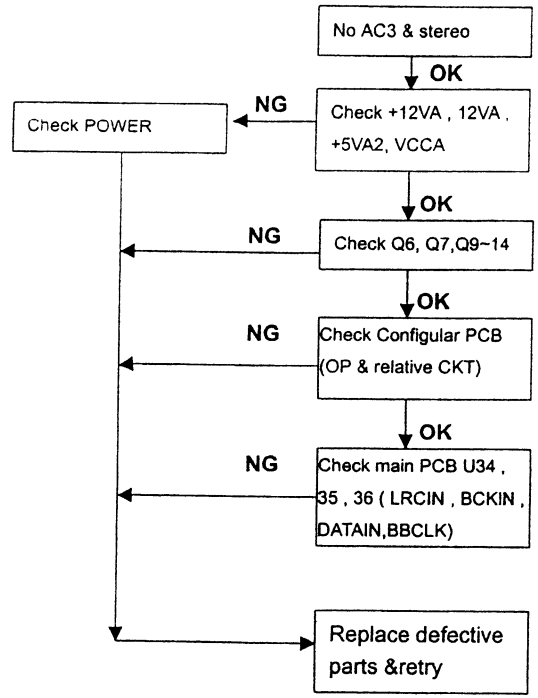
No VFD display output

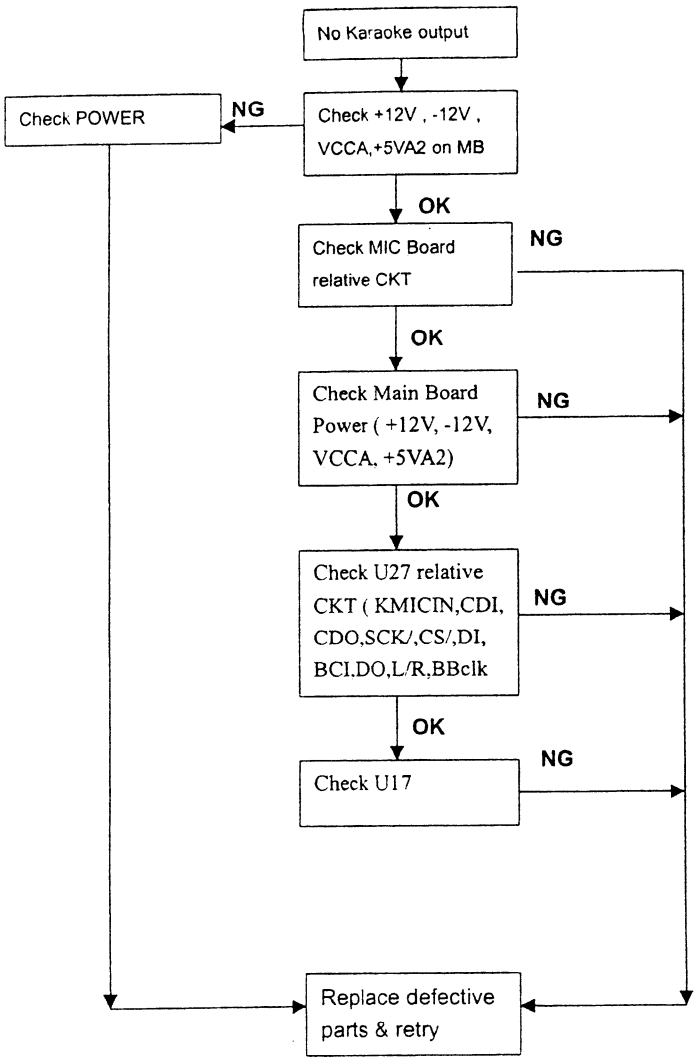


8.2 Audio Problems

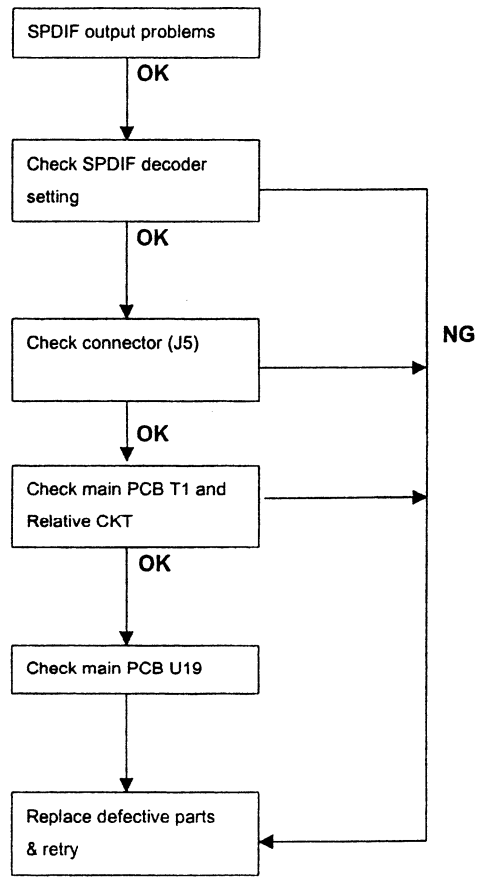
No AC-3 & Stereo Audio Output or output not right

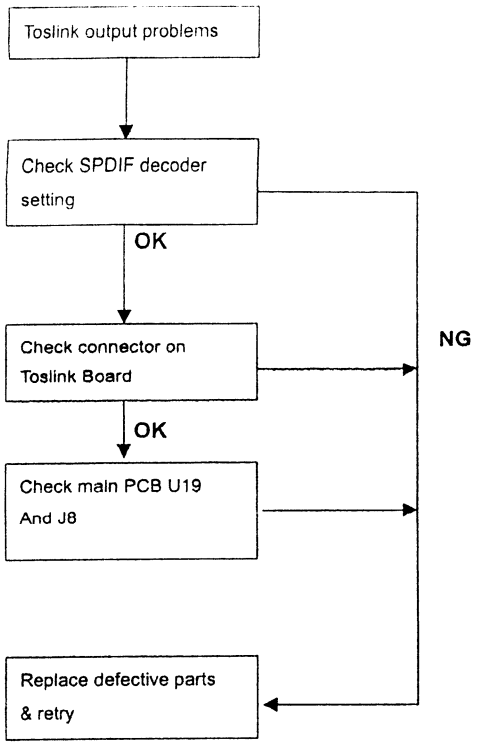






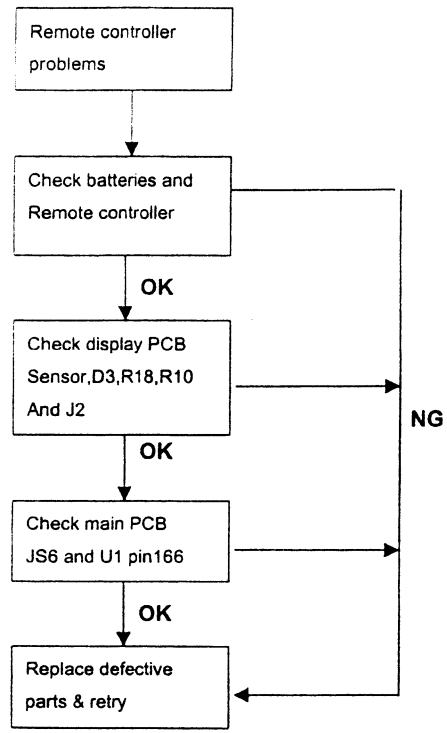
SPDIF Output problems





8.3 Other Problems

Remote Controller Problems



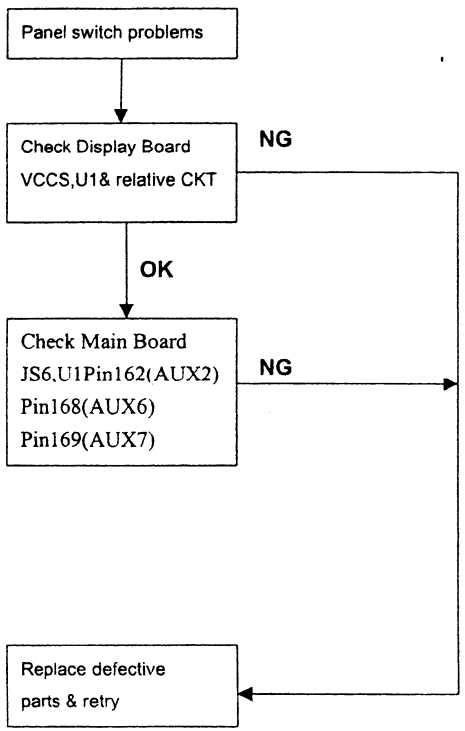
If power board outputs are not good, try to rotate VR on the power board to adjust outputs.

Remove the power on every PCBs in proper sequence and check where problem is.

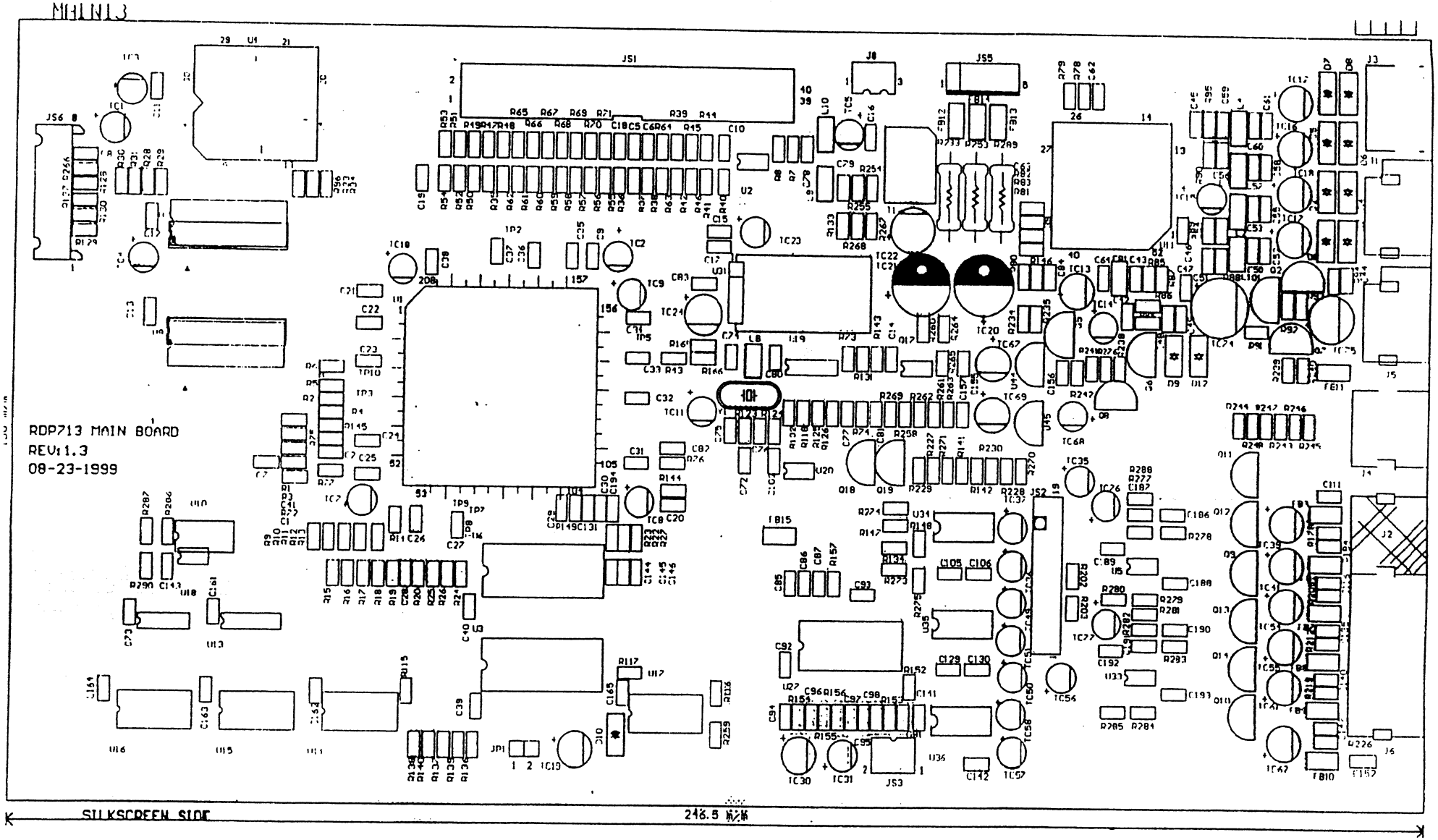
DVD-ROM Problems

Change DVD-ROM driver to prove it is bed.

Panel Switch Problems



MAIN13



[redacted]

RDP-713 series

PAGE	
1	INDEX
2	SWAN CHIP
3	SRAM\SDRAM & ROM EMULATOR
4	DVD DRIVE INTERFACE
5	VIDEO ENCODER
6	KARAOKE & S/PDIF
7	AUDIO D/A
8	POWER & CLOCK CIRCUIT
9	ES4408 SOLUTION DIFFERENTIAL TABLE

Manufacture Issues :

1. **TEST POINT PAD MUST BE RESERVED FOR ICT FUNCTION TEST.**

DESIGN ISSUES:

(1) STABILITY PROBLEMS WHEN PLAYING SVCD DISK.

(2) THE I2C SIGNALING IS UNRELIABLE.

(3) OCASSIONALLY AFTER POWER ON, THE SYSTEM HANGS.

(4) VIDEO PERFORMANCE IS UNTESTED.

(5) AUDIO PERFORMANCE IS UNTESTED.

(6) SIX CHANNEL AUDIO HAS NOT BEEN VERIFIED.

(7) CLOCK CIRCUIT HAS NOT BEEN VERIFIED.

(8) VIDEO ENCODER CIRCUIT HAS NOT BEEN VERIFIED.

POWER

NAME	TYPE	DEVICE
VCCS	DIGITAL 5V	POWER SUPPLY
VCC	DIGITAL 5V	STANDBY POWER
VCCA	DIGITAL 5V	AUDIO DIGITAL 5V
VCCV	ANALOG 5V	VIDEO ENCODER
+12VA	DIGITAL 12V	POWER SUPPLY
-12VA	DIGITAL -12V	POWER SUPPLY
+12VC	DIGITAL 12V	CONFIGULAR POWER
VCC3S	DIGITAL 3.7V	MAIN SYSTEM
+5VA2	ANALOG 5V	AUDIO SYSTEM
+5VA2S	ANALOG 5V	STANDBY POWER

GROUND

NAME	TYPE
▽	GROUND

THE INFORMATION HAS BEEN CHECKED AND IS BELIEVED TO BE RELIABLE. HOWEVER, NO RESPONSIBILITY IS ASSUMED FOR INNACCURACIES. CIRCUIT DIAGRAMS ARE PROVIDED AS A MEANS OF ILLUSTRATING TYPICAL APPLICATIONS; CONSEQUENTLY COMPLETE INFORMATION FOR CONSTRUCTION PURPOSES IS NOT NECESSARILY GIVEN. ESS RESERVES THE RIGHT TO MAKE CHANGES AT ANY TIME IN ORDER TO IMPROVE THE DESIGN.

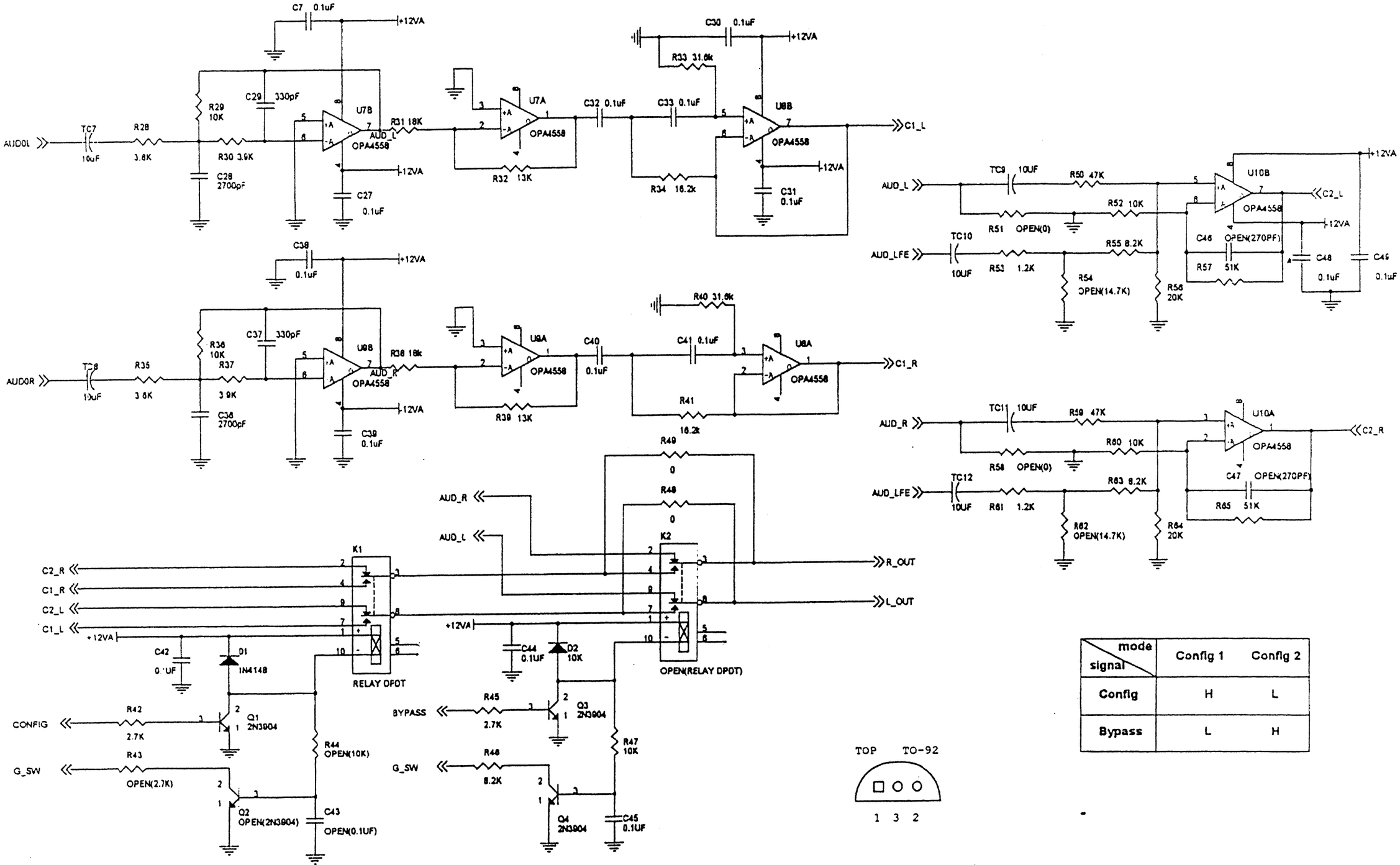
Differential Table	2CH Karaoke M1	2CH Karaoke M2	NO Karaoke	2CH Karaoke M1	2CH Karaoke M2	NO Karaoke
MODEL NAME	RDP-705K	RDP-715K	RDP-715	RDP-705K	RDP-715K	RDP-715
C85	#	#	#	#	#	
C89	#	#	#	#	#	
C87	#	#	#	#	#	
C92	#	#	#	#	#	
C93	#	#	#	#	#	
C94	#	#	#	#	#	
C95	#	#	#	#	#	
C96	#	#	#	#	#	
C97	#	#	#	#	#	
C98	#	#	#			
C120	#	#	#			
C130	#	#	#			
C136	#	#	#			
C140	#	#	#			
C141	#	#	#			
C142	#	#	#			
C147	#	#	#			
C152	#	#	#			
C163	#	#	#	#	#	#
C164	#	#	#	#	#	#
C186				#	#	#
C187				#	#	#
C188				#	#	#
C189				#	#	#
C190				#	#	#
C191				#	#	#
C192				#	#	#
C193			#	#	#	
J52	#	#	#			
J53	#	#	#			
J6	#	#	#			
FB7	#	#	#			
FB8	#	#	#			
FB9	#	#	#			
FB10	#	#	#			
Q8	#	#	#			
Q10	#	#	#			
Q13	#	#	#			#
Q14			#			#
R134			#			
R147			#			
R148				#	#	
R153	#	#	#	#	#	
R154	#	#	#	#	#	
R156	#	#	#			
R158	#	#	#			
R202	#	#	#			
R203	#	#	#			
R206	#	#	#			
R212	#	#	#			
R219	#	#	#			
R226	#	#	#			
R243	#	#	#			
R244	#	#	#			
R247	#	#	#			
R248	#	#	#	#	#	
R273	#	#	#	#	#	
R274	#	#	#	#	#	#
R275				#	#	#
R277				#	#	#
R278				#	#	#
R279				#	#	#
R280				#	#	#
R281				#	#	#
R282				#	#	#
R283				#	#	#
R284				#	#	#
R286				#	#	
R288				#	#	
TC30	#	#				
TC31	#	#	#			
TC49	#	#	#			
TC50	#	#	#			
TC51	#	#	#			
TC54	#	#	#			
TC55	#	#	#			
TC58	#	#	#			
TC57	#	#	#			
TC58	#	#	#			
TC61	#	#	#			#
TC62				#	#	#
TC76				#	#	#
TC77				#	#	#
U5	#	#				
U27	#	#				
U33	#	#	#			
U35	#	#	#			
U36	#	#	#	#	#	#
U15	#	#	#	#	#	#
U16				#	#	
J2	#	#	#	#	#	#
R1						
R2						

[redacted]

Title: DVD-Player || -- ESS solution

Size | Document Number: Differential Table | Rev: 1.3

Date: Tuesday, June 27, 1998 | Sheet 8 of 8



mode / signal	Config 1	Config 2
Config	H	L
Bypass	L	H

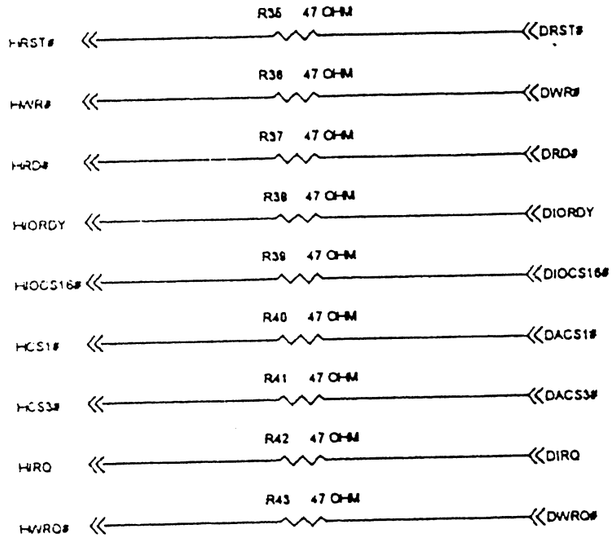
SWAN

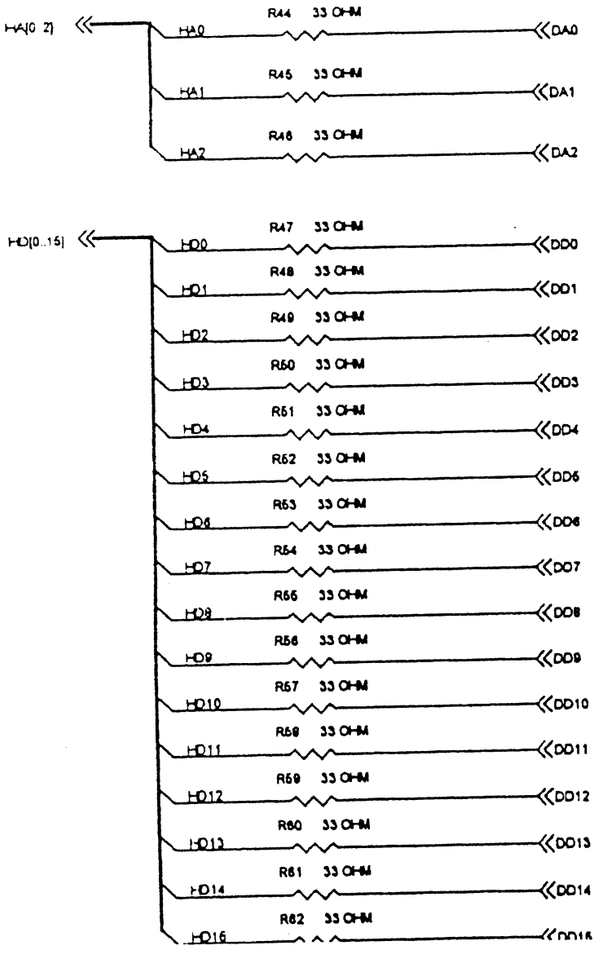
U1
SWAN

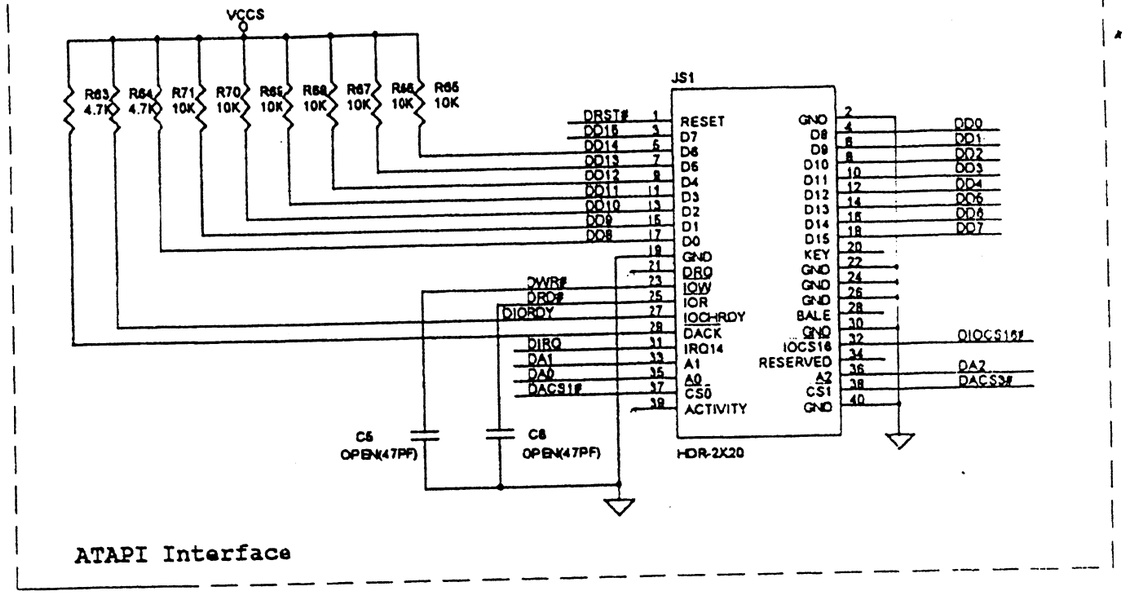
TSD1	TSD0	PLL	FREQ
0	0	2.5	67.5MHZ
0	1	3	81.0MHZ
1	0	3.5	94.5MHZ
1	1	4	108.0MHZ

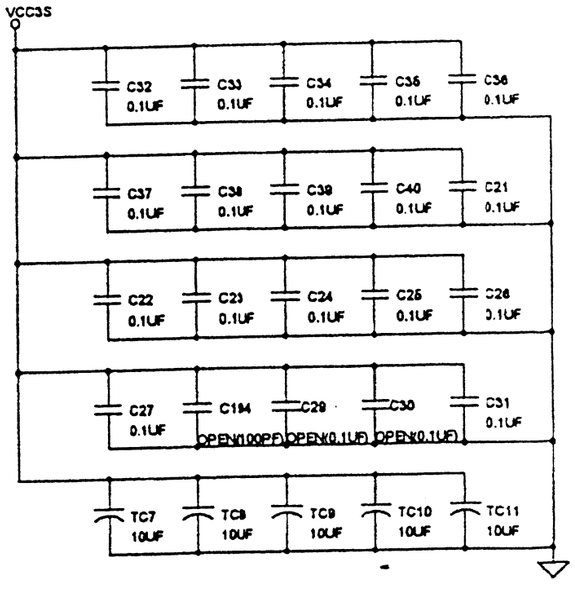
VFD
JS8
HDR-8 JST-XH

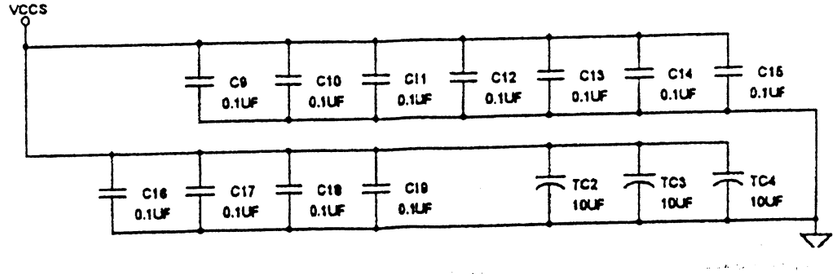
Title	DVD-Player II – ESS solution	
Size	Document Number: Swan Chip	Rev 1.3





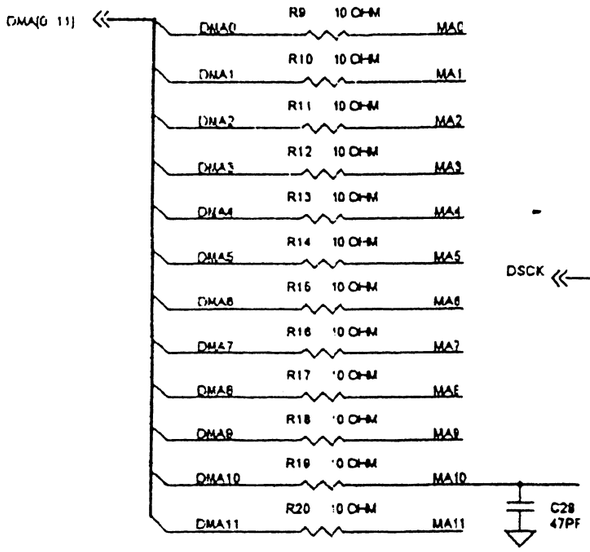


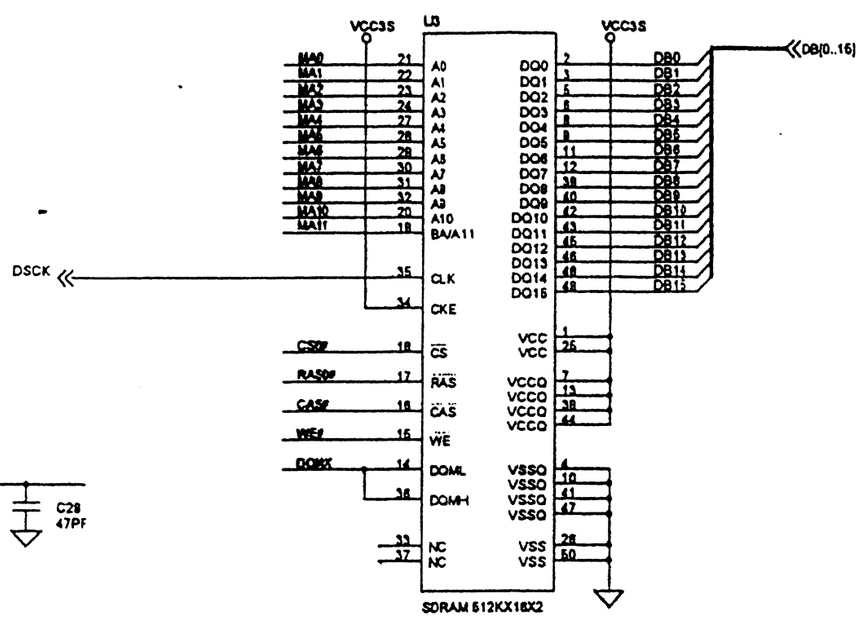


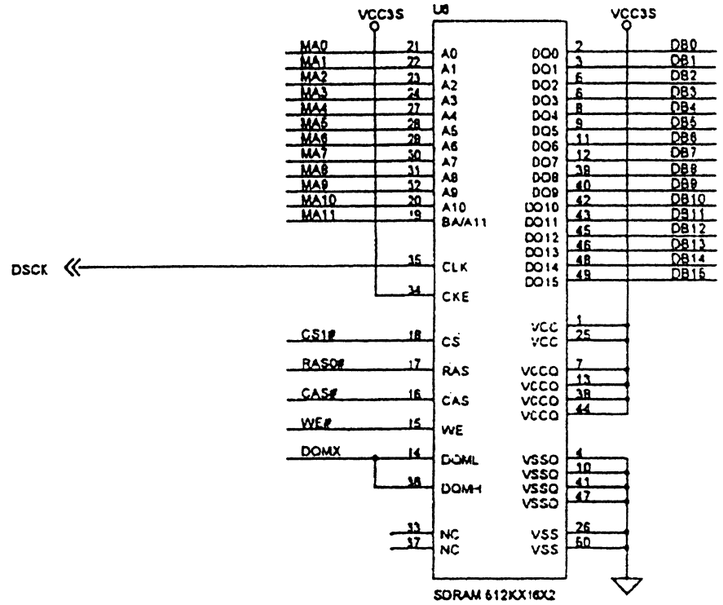


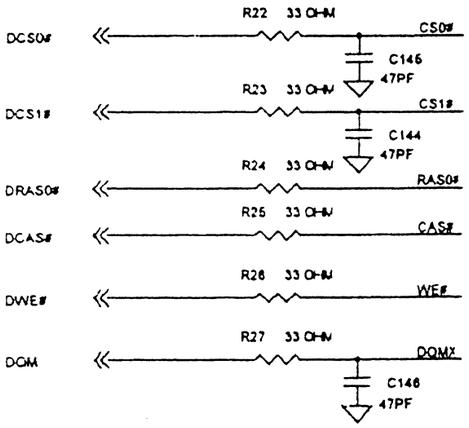
DVD-Player II -- ESS Solution

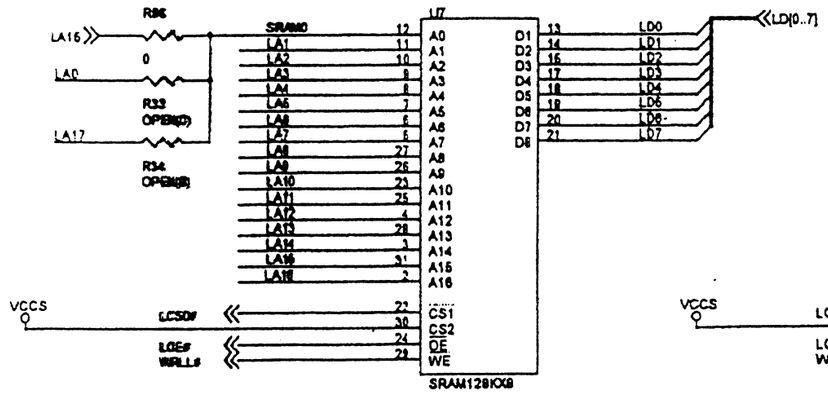
Size | Document Number | Rev

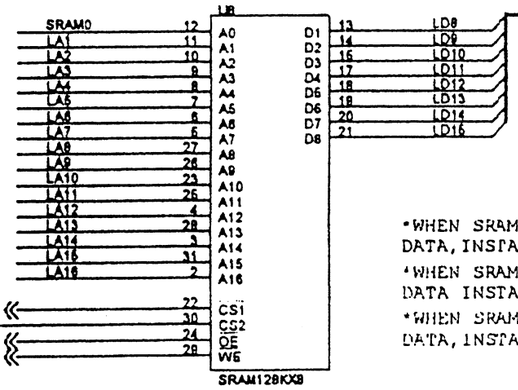








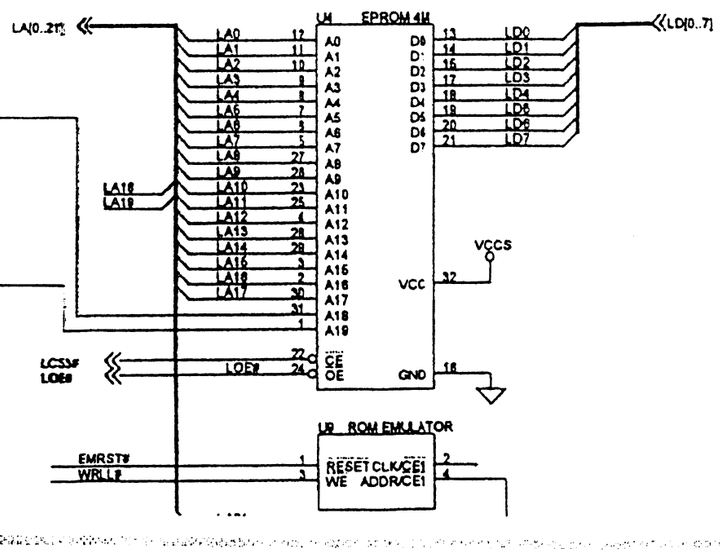




*WHEN SRAM IS 128KX8 IN 8 BIT DATA, INSTALL R33

*WHEN SRAM IS 128KX8 IN 16 BIT DATA INSTALL R34

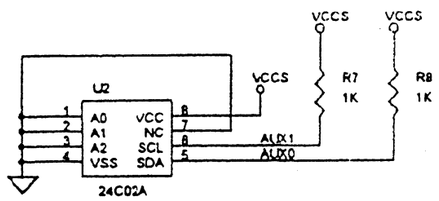
*WHEN SRAM IS 32KX8 IN 16 BIT DATA, INSTALL R96



CRITICAL TRACES

MOST — CLOCKS, ADDRESS, CAS, WE, RAS, CS#, DQM — LEAST

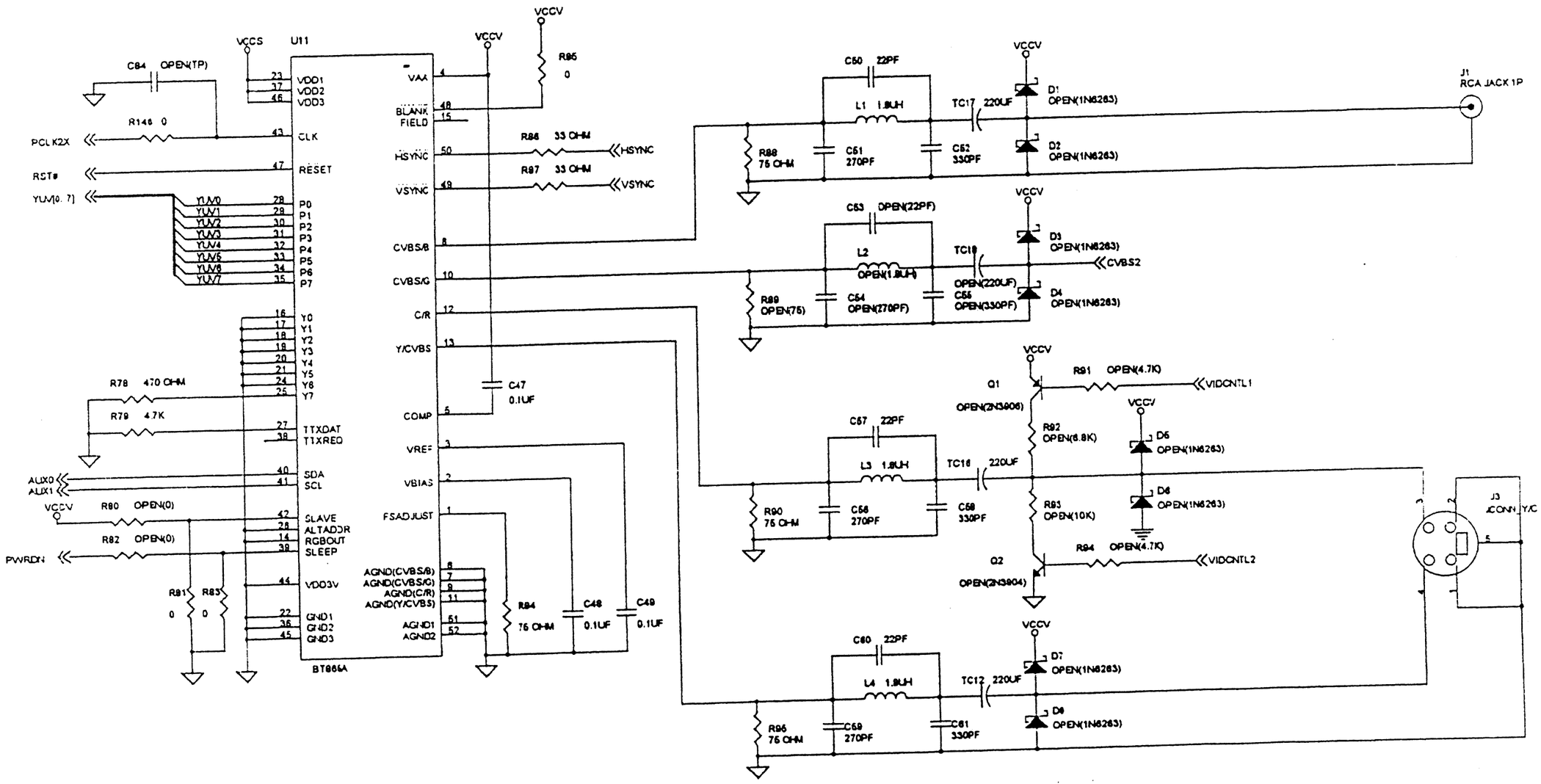
ROM	SHORT	OPEN
EPROM	R28, R30	R29, R31
FLASH	R29, R31	R28, R30



I2C ADDR = 0XA0

DVD-PLAYER II – ESS solution

Size | Document Number | # | Rev



SLEEP

0 = NORMAL OPERATION
1 = POWER DOWN

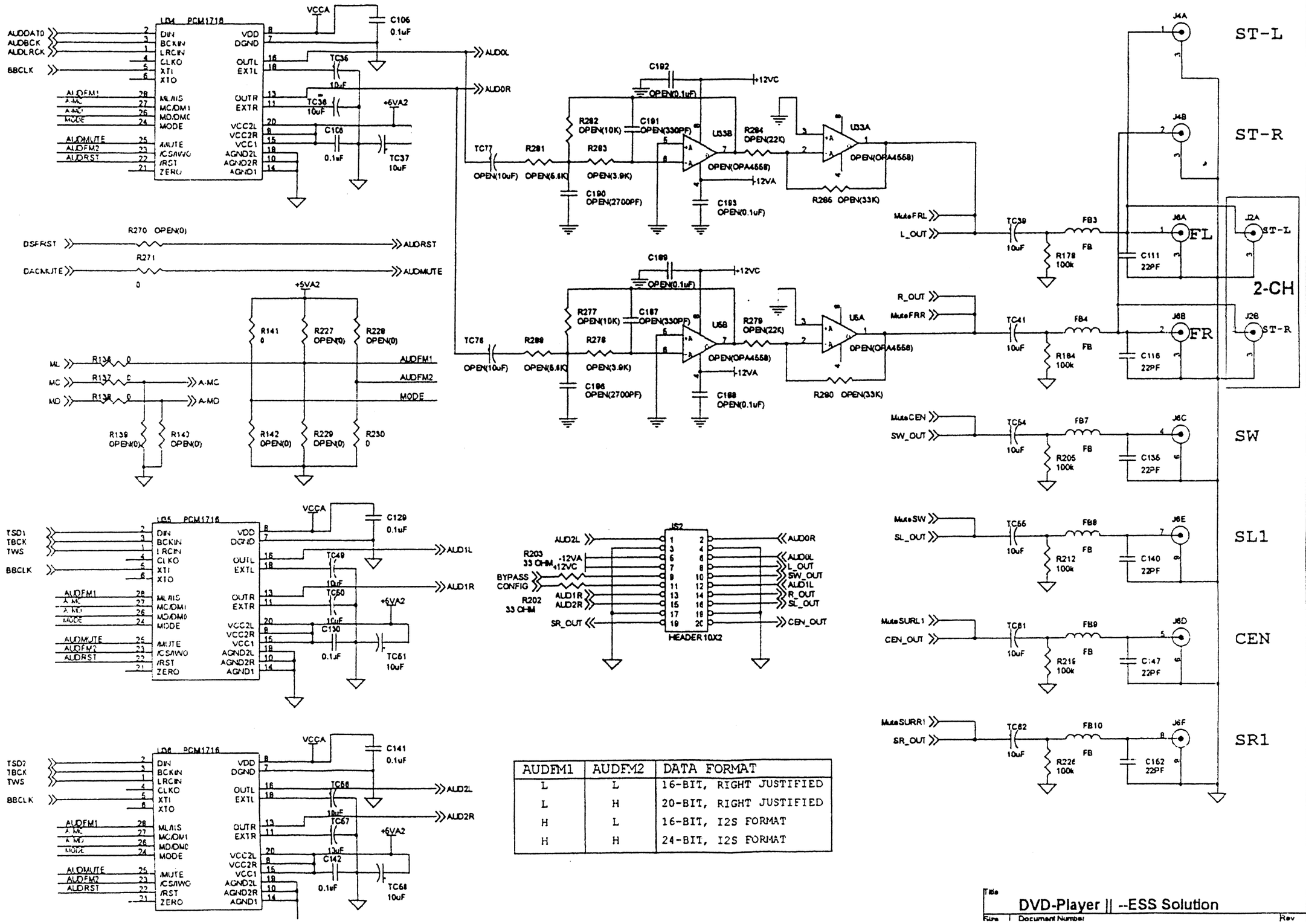
SLAVE

0 = MASTER MODE
1 = SLAVE MODE

CNTL2	CNTL1	LEVEL	ASPECT RATIO
1	1	N/A	N/A
1	0	0V	4:3
0	1	3V	4:3 LETTER BOX
0	0	5V	16:9 SQUEEZE/FULL

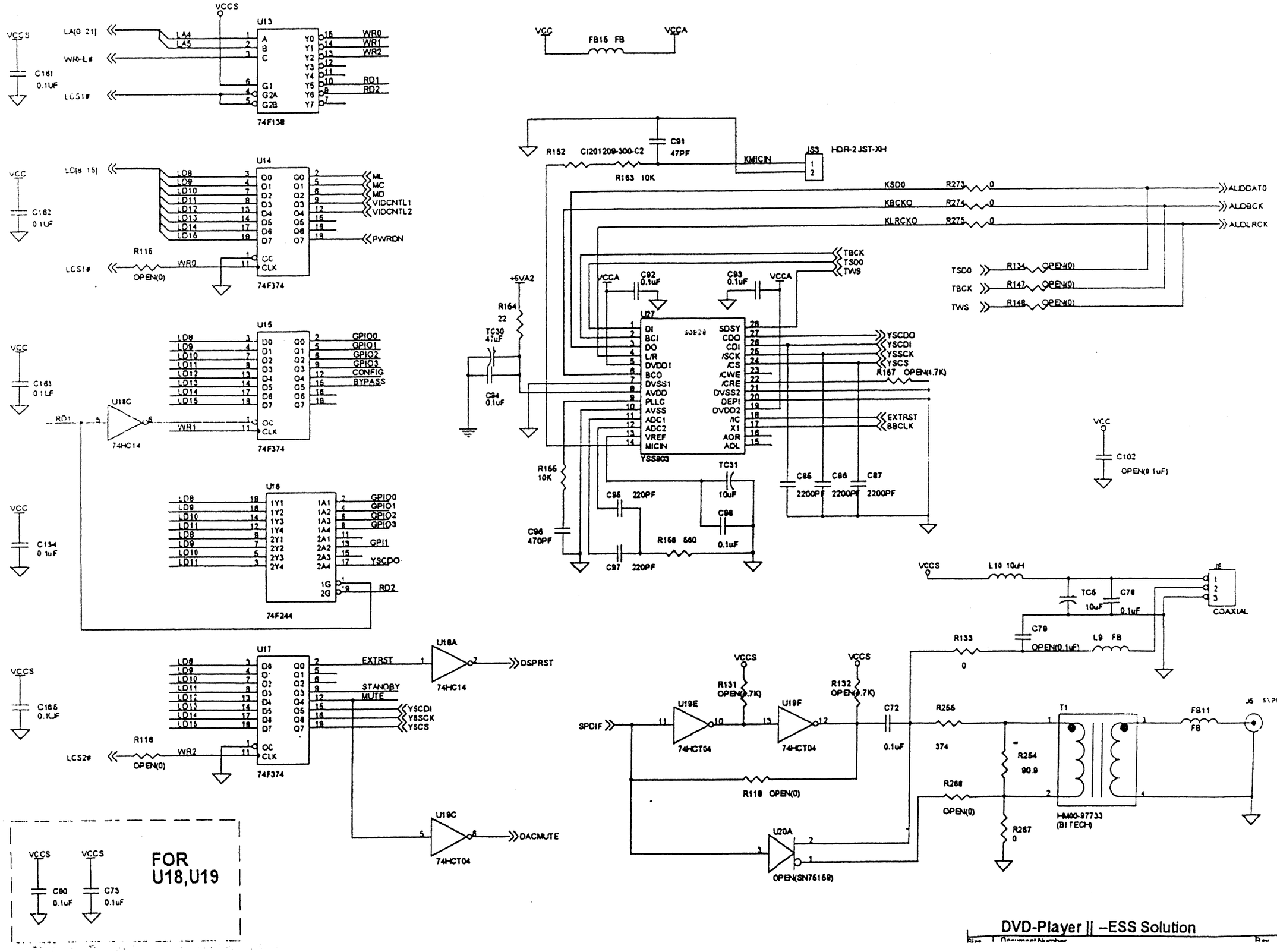
Title: DVD-Player II -- ESS Solution

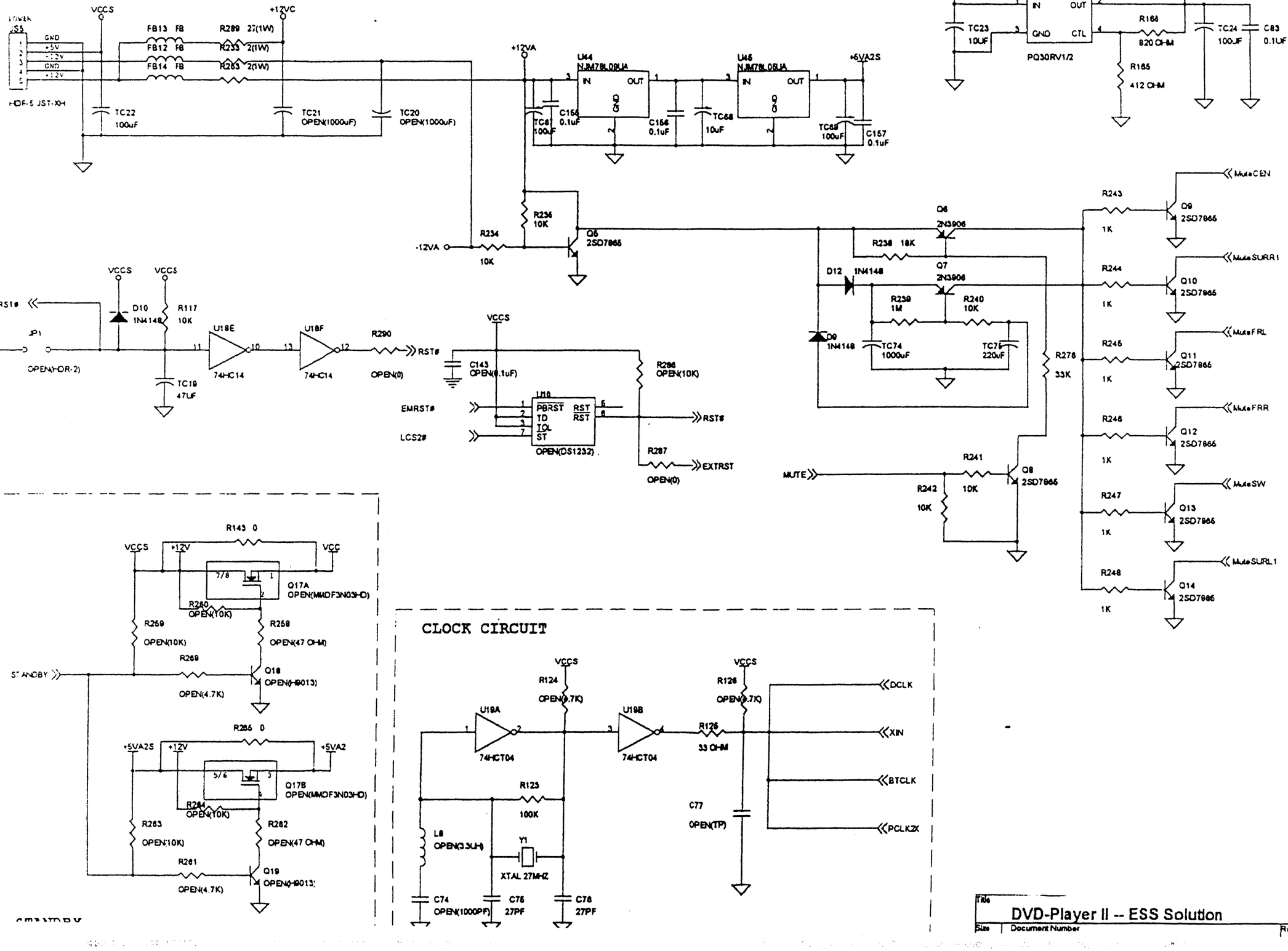
Size | Document Number: Video Encoder(BT866A) | Rev 1.3

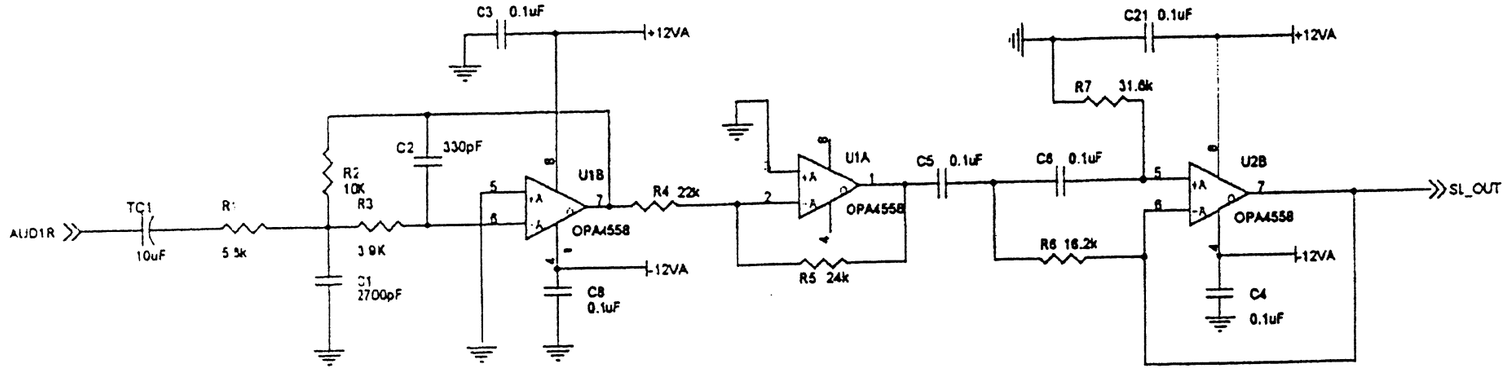


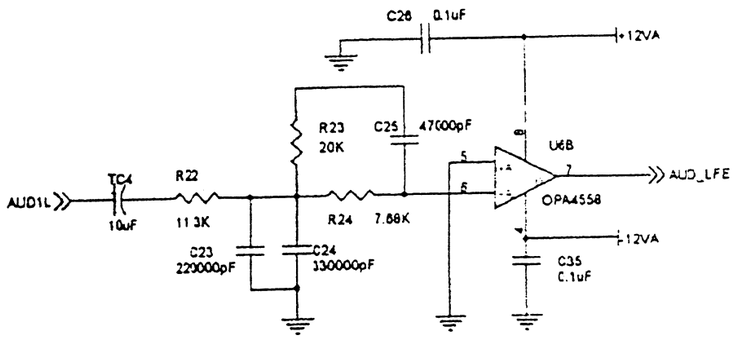
AUDFM1	AUDFM2	DATA FORMAT
L	L	16-BIT, RIGHT JUSTIFIED
L	H	20-BIT, RIGHT JUSTIFIED
H	L	16-BIT, I2S FORMAT
H	H	24-BIT, I2S FORMAT

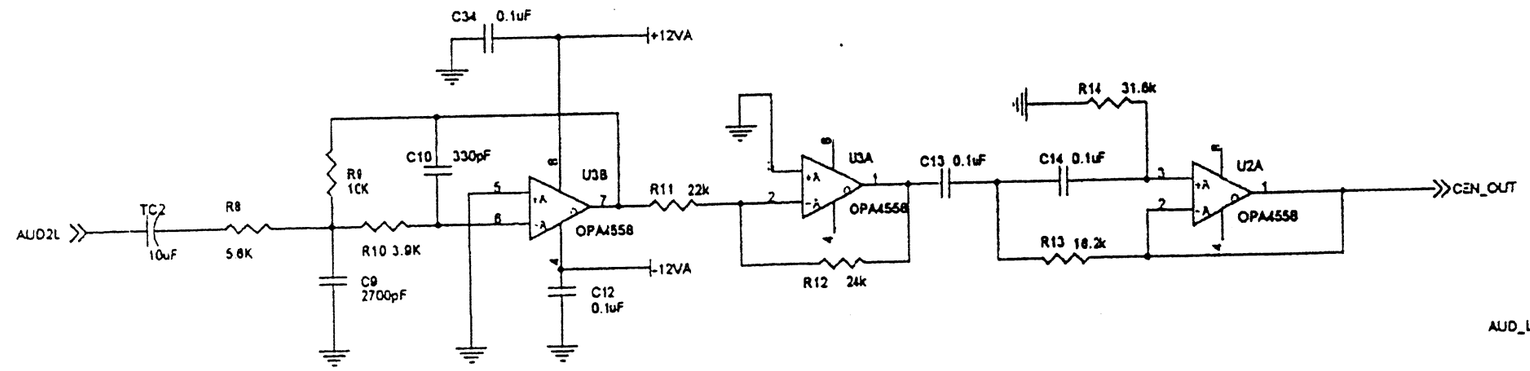
Title
DVD-Player || --ESS Solution
Size | Document Number | Rev

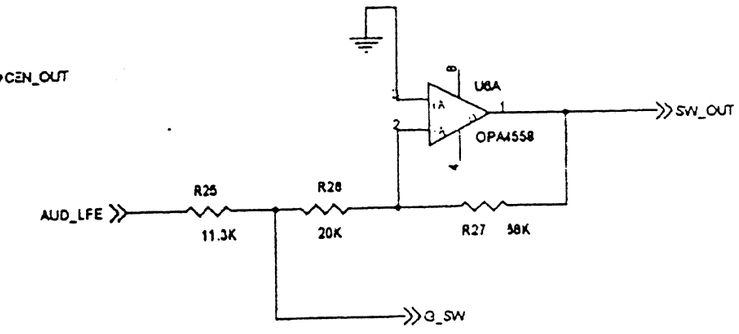

VCCS
U13
LA[0 21]
LA4
LA5
WR-L#
LCS1#
C161 0.1UF
74F138
WR0
WR1
WR2
RD1
RD2
U14
LD[8 15]
LD8
LD9
LD10
LD11
LD12
LD13
LD14
LD16
C162 0.1UF
R116
OPEN(0)
74F374
ML
MC
MD
VIDCNTL1
VIDCNTL2
PWRDN
U15
C163 0.1UF
U18C
74HC14
GPIO0
GPIO1
GPIO2
GPIO3
CONFIG
BYPASS
U16
C134 0.1uF
74F244
GPI1
YSCPO
U17
C165 0.1UF
LCS2#
EXTRST
STANDBY
MUTE
YSCDI
YSSCK
YSCS
U18A
DSPRST
U19C
DACMUTE
FOR U18,U19
C80 0.1uF
C73 0.1uF
VCC
FB15 FB
VCCA
R162 C1201209-300-C2
C91 47PF
R163 10K
KMICIN
JS3 HDR-2 JST-XH
KSDO
KBCKO
KLRCKO
R273 0
R274 0
R275 0
ALIDDAT0
ALIDBCK
ALIDLRCK
TBCK
TSDO
TWS
R134 OPEN(0)
R147 OPEN(0)
R148 OPEN(0)
+5VA2
R164 22
TC30 47uF
C94 0.1uF
C92 0.1uF
C93 0.1uF
U27
SOP28
DI
BCI
DO
L/R
DVDD1
BCO
DVSS1
AVDD
PLLC
AVSS
ADC1
ADC2
VREF
MICIN
YSS903
SDSY
CDO
CDI
/SCK
/CS
/CWE
/CRE
DVSS2
DEPI
DVDD2
/C
X1
AOR
AOL
TC31
YSCDO
YSCDI
YSSCK
YSCS
R167 OPEN(4.7K)
EXTRST
BBCLK
R166 10K
C96 470PF
C95 220PF
C97 220PF
10uF
C98 0.1uF
R168 560
C85 2200PF
C86 2200PF
C87 2200PF
C102 OPEN(0.1uF)
L10 10uH
TC5 10uF
C78 0.1uF
C79 OPEN(0.1uF)
L9 FB
COAXIAL
R133 0
R131 OPEN(4.7K)
R132 OPEN(4.7K)
U19E
U19F
74HCT04
SPDIF
C72 0.1uF
R255 374
R254 90.9
R256 OPEN(0)
R257 0
R118 OPEN(0)
T1
HM00-97733 (BITECH)
FB11 FB
U20A
OPEN(SN75158)
DVD-Player || --ESS Solution

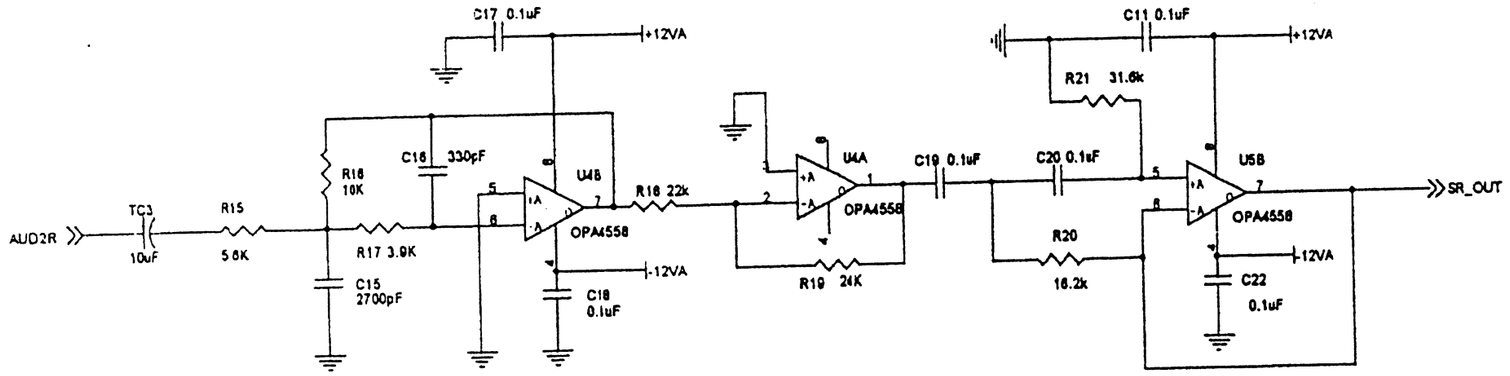

VCCS
+12VC
+12VA
-12VA
+6VA2S
VCC3S
U31
PQ30RV1/2
U44
U46
NJM78L08UA
TC23 10UF
TC24 100UF
C83 0.1UF
R166 820 OHM
R165 412 OHM
TC22 100uF
TC21 OPEN(1000uF)
TC20 OPEN(1000uF)
TC61 100uF
C154 0.1uF
C156 0.1uF
TC68 10uF
TC69 100uF
C157 0.1uF
R236 10K
R234 10K
Q5 2SD786
Q6 2N3906
Q7 2N3906
D12 1N4148
D9 1N4148
R238 18K
R239 1M
R240 10K
TC74 1000uF
TC75 220uF
R276 33K
R241
R242 10K
Q8 2SD786
MUTE
R243
R244
R245
R246
R247
R248
Q9 2SD786
Q10 2SD786
Q11 2SD786
Q12 2SD786
Q13 2SD786
Q14 2SD786
1K
MuteCEN
MuteSURR1
MuteFRL
MuteFRR
MuteSW
MuteSURL1
EMRST#
JP1
OPEN(HDR-2)
D10 1N4148
R117 10K
TC19 47UF
U18E
U18F
74HC14
R290
OPEN(0)
RST#
C143 OPEN(0.1uF)
R286 OPEN(10K)
U16
PBRST
TD
TCL
ST
RST
OPEN(DS1232)
LCS2#
R287
OPEN(0)
EXTRST
HDR-5 JST-XH
GND
+5V
+12V
FB13 FB
FB12 FB
FB14 FB
R289 27(1W)
R283 2(1W)
R283 2(1W)
STANDBY
R143 0
+12V
VCC
Q17A OPEN(MMDF3N03HD)
R260 OPEN(10K)
R259 OPEN(10K)
R258 OPEN(47 OHM)
R269
Q18 OPEN(9013)
OPEN(4.7K)
R265 0
+5VA2S
+5VA2
Q17B OPEN(MMDF3N03HD)
R264 OPEN(10K)
R263 OPEN(10K)
R262 OPEN(47 OHM)
R261
Q19 OPEN(9013)
OPEN(4.7K)
CLOCK CIRCUIT
R124 OPEN(0.7K)
R126 OPEN(0.7K)
U19A
U19B
74HCT04
R125 33 OHM
R123 100K
L8 OPEN(3.3UH)
Y1
XTAL 27MHZ
C77 OPEN(TP)
C74 OPEN(1000PF)
C75 27PF
C76 27PF
DCLK
XIN
BTCLK
PCLK2X
Title
DVD-Player II -- ESS Solution
Size
Document Number
Rev

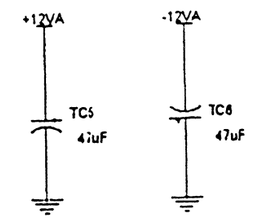


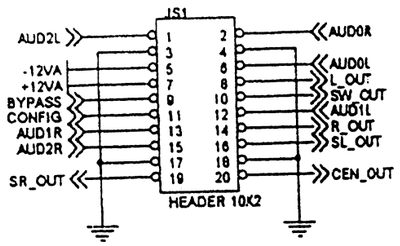


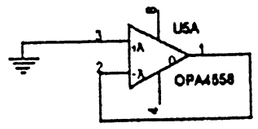






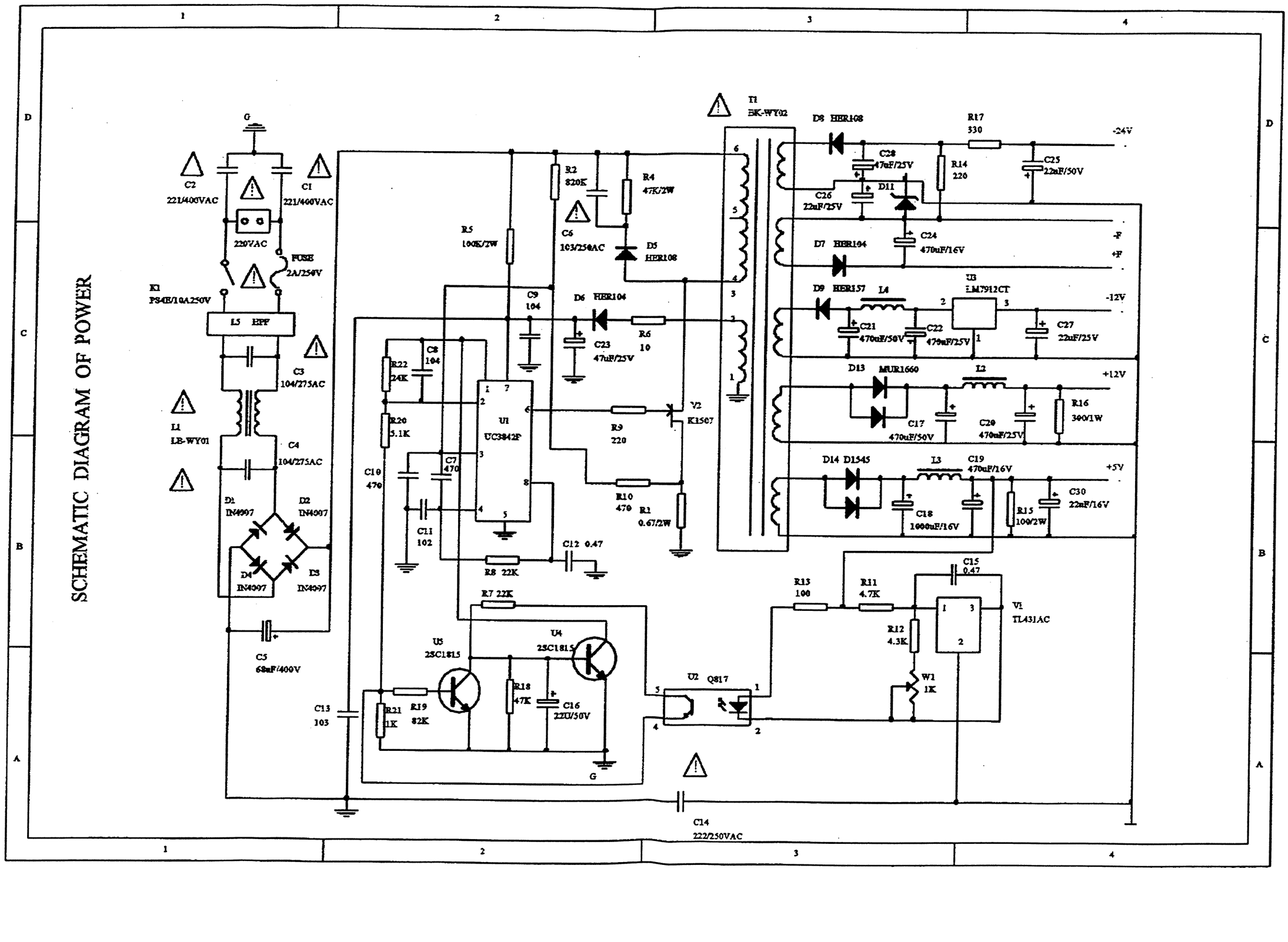






AUDIO D/A & CONNECTOR

SCHEMATIC DIAGRAM OF POWER



NO	料號	名稱	數量	SCREW TOYQUE
1	3001000708	LIP-TRAY	1	
2	2PP03N57N8	LCD COVER	1	
3	2PP03H01N8	PANEL	1	
4				
5	2PP03N06N1	BUTTON POWER	1	
6	2PP03N29N8	BUTTON EJECT	1	
7	2PP03N13N5	BUTTON FUNCTION	1	
8				
9		DISPLAY PCB ASS'Y	1	
10		REMOTE CONTROL	1	
11		DVD ROM DRIVE ASS'Y	1	
12	1TP03A80N8	BRACKET ANGLE (L) FOR RATE	1	
13	1TP03N80N8	BRACKET ANGLE (R) FOR RATE	1	
14		MAIN BOARD ASS'Y	1	
15	1TP02W03N9	BOTTOM COVER	1	
16		AC SOCKET	1	
17		POWER BOARD ASS'Y	1	
18	10010003A3	TOP COVER	1	
19				
20	4493008107	3M/M L=8 TAPPING SCREW	5	6 Kg-cm
21	4393005009	M3 L=6 SCREW	24	6 Kg-cm
22	1CP02NB1N5	M3 L=10 COPPER BOSS	4	3 Kg-cm
23	1CP02A51N5	M3 L=10 COPPER BOSS	4	3 Kg-cm
24	2PP02A41N8	BACK FOOT	2	
25	4334008006	M4 L=6 SCREW	2	6 Kg-cm
26	2PP02N41N5	FRONT FOOT	2	
27				
28	4413008004	3M/M L=6 TAPPING SCREW	8	6 Kg-cm
29	4313008005	M3 L=6+GEAR WASHER	2	6 Kg-cm
30	47730020A5	M3 NUT+GEAR WASHER	2	6 Kg-cm

REVISION			
DATE	MARK	DESCRIPTION	REV. BY

TO AC SOCKET

C"詳圖

A"詳圖

TO DVD ROM DRIVE

B"詳圖

			FINAL	
			TOOLING	
			TITLE: RDP-715 ASSEMBLY DRAWING(CS)	
			PART NO.	
			715 PLAYER ASSY	
SCALE				
UNIT	MM	UNLESS OTHERWISE SPECIFIED		
SIZE	A1	DO NOT SCALE DRAWING		